

REVIEW OF MEDICAL AND VETERINARY MYCOLOGY

(Formerly issued as An Annotated Bibliography of Medical Mycology)

VOL. I

1951

PART 9

The contracted titles used in this bibliography are based on the *World List of Scientific Periodicals*, with the following exceptions:

- B.A. = *Biological Abstracts*
- B.H. = *Bulletin of Hygiene*
- R.A.M. = *Review of Applied Mycology*
- T.D.B. = *Tropical Diseases Bulletin*
- V.B. = *Veterinary Bulletin*.

1810. **Medical mycology.**—*Ann. N.Y. Acad. Sci.*, 50, 10, pp. 1209–1404, 54 figs., 1 graph, 4 maps, 1950.

This symposium presents recent data on medical mycology and discusses some fundamental aspects of problems awaiting solution. C. W. DODGE writes on mycological research and the progress of medicine; S. B. SALVIN on public health aspects of fungal infections; M. MOORE on the evaluation of the classification of pathogenic fungi; N. F. CONANT on future developments in mycological investigative methods; F. D. WEIDMAN on superficial dermatomycoses caused by *Trichophyton*, *Microsporum*, and *Epidermophyton* spp.; A. L. CARRIÓN on chromoblastomycosis; A. CHRISTIE on histoplasmosis [*Histoplasma capsulatum*] and pulmonary calcification; RHODA W. BENHAM on cryptococcosis [*Cryptococcus neoformans*] and blastomycosis [*Blastomyces dermatitidis*]; LUCILLE K. GEORG on the nutritional requirements of the faviform species of *Trichophyton*; H. GOUGEROT on new insight gained in general pathology and practical medicine by the study of sporotrichoses; W. J. ROBBINS on the growth requirements of dermatophytes; S. M. PECK on fungus antigens and their importance as sensitizers in the general population; D. S. MARTIN on the practical application of immunological principles in the diagnosis and treatment of fungal infections; A. M. IAMS on the histoplasmin skin test; and R. M. ARCHIBALD and F. REISS on some biochemical implications from a study of growth of pathogenic fungi on media containing single amino acids.

1811. MAGROU (J.). **Pierre-Ernest Pinoy (1873–1948).**—*Mycopathologia*, 5, 1 pp. 95–101, 1950.

This is a brief review of the life work of P. E. Pinoy, followed by a bibliography of his more important contributions to mycology.

1812. VANBREUSEGHEM (R.). **Les champignons pathogènes.** [Pathogenic fungi.]—*Arch. méd. belg.*, 1950, 1, pp. 1–11, 1950.

The author discusses (with examples) three types of human mycoses, viz. those due to dermatophytes causing superficial affections of the skin, those due to pathogenic yeasts causing visceral disorders, and those due to pathogenic fungi the botanical affinities of which are completely unknown; the diseases caused by the last group are all deep-seated. From his own experiments he concludes that the dermatophytes are the only fungi able to cause infection of the nails and their adnexa, and that where cases have been reported in which

a disease of these parts was attributed to a mould, the mould was only a saprophyte.

1813. BENEDEK (T.). **Critical survey of the mycological literature of the years 1939 to 1942.**—*Mycopathologia*, 5, 1, pp. 14–64, 1950.

This survey of the literature of medical mycology from 1939 to 1942 comprises an introduction and a long section on hyphomycoses, the latter divided into subsections covering technique, statistics, cultural studies, *Trichophyton* (clinical details and allergy), *Microsporum*, favus [*Trichophyton schoenleinii*], and *Epidermophyton* and epidermophytosis.

1814. CARNEIRO (A. L.). **Ten years of investigation about mycopathology in Portugal (1938–1948).**—*Mycopathologia*, 5, 1, pp. 91–94, 1950.

Brief notes are given on Portuguese contributions to medical mycology from 1938 to 1948, inclusive, followed by a list of references to the works cited.

1815. SAUNDERS, L. Z. **Systemic fungous infections in animals: a review.**—*Cornell Vet.*, 38, 3, pp. 213–238, 1948. [Received January, 1951.]

In this useful survey much scattered information on the etiology, geographical distribution, and diagnosis of systemic mycoses of animals is concisely summarized. Epizootic lymphangitis (*Histoplasma farciminosum*) of horses, mules, and donkeys appears exceptional in being confined to animals.

Histoplasmosis (*Histoplasma capsulatum*), which is usually fatal, has most frequently been recorded among animals from North America in dogs. Sporotrichosis (*Sporotrichum schenckii*) affects horses (in which the subcutaneous nodule formation has sometimes been mistaken for epizootic lymphangitis), dogs, and probably other animals. *Coccidioides immitis*, the cause of coccidioidomycosis in certain parts of the United States, has been frequently recorded in cattle and occasionally in other farm animals, while rodents possibly serve as a reservoir of infection. Rhinosporidiosis (*Rhinosporidium seeberi*), a chronic affection of the nasal and ocular mucous membranes, occurs in cows in India and Uruguay and in the horse in both these countries and in South Africa.

Other diseases reviewed are North American blastomycosis (*Blastomyces dermatitidis*) and cryptococcosis or torulosis (*Cryptococcus neoformans*) of horses and other animals, moniliasis (*Candida albicans*) and aspergillosis (*Aspergillus fumigatus* and other species) of birds and, less frequently, mammals, while a number of other cases in which fungi were found causing, or associated with, minor disorders are noted.

1816. KLIGMAN (A. M.) & DELAMATER (E. D.). **The immunology of the human mycoses.**—*Ann. Rev. Microbiol.*, 4, pp. 283–312, 1950.

The authors review and discuss, with 199 references to the literature, the immunological aspect of medical mycology. The aspects treated comprise human susceptibility to fungus infections, immunology of ringworm infections and of the systemic mycoses, including the 'id' phenomenon, torulosis and *Cryptococcus neoformans*, actinomycosis and *Actinomyces bovis*, nocardiosis and *Nocardia asteroides*, moniliasis and *Candida albicans*, sporotrichosis and *Sporotrichum schenckii*, blastomycosis and *Blastomyces dermatitidis*, histoplasmosis and *Histoplasma capsulatum*, the complement-fixation test, and coccidioidomycosis and *Coccidioides immitis*.

1817. LITTMAN (M. L.). **A special micro slide for the culture of fungi.**—*Amer. J. clin. Path.*, 19, 3, pp. 278–283, 1949. [B.A., 23, No. 19127.]

A slide is described with a circular, flat-bottomed well deep enough to allow satisfactory growth to fungi yet so shallow that all planes of the chamber formed with a cover-glass can be brought into focus.

1818. **Medical treatment. Principles and their application.**—xxiv, 1464 pp., 51 figs., London, Butterworth Co., 1951. £5.5.0.

The general aim of this treatise, which is edited by G. EVANS, Consulting Physician, St. Bartholomew's Hospital, is to reflect the present-day outlook on medical practice and therapy as exemplified by the contributors to the sections on different diseases, including V. Z. COPE on actinomycosis and R. M. B. MACKENNA and B. RUSSELL on dermatomycoses, moniliasis, and other skin diseases.

1819. REISS (F.) & CAROLINE (LEONA). **The effect of trimeton maleate on pathogenic fungi.**—*Exp. Med. Surg.*, 8, 2-3-4, pp. 330-335, 1950.

In a joint experimental study of the New York University Post-Graduate Medical School and the Bellevue Hospital Service of Dermatology, the effect of the antihistamine trimeton maleate on 13 pathogenic fungi was investigated. The maximum degree of inhibition was observed in *Blastomyces dermatitidis*, *Cryptococcus neoformans*, and *Histoplasma capsulatum*. A slighter action was exerted on *Trichophyton gypseum* [*T. mentagrophytes*], *T. purpureum* [*T. rubrum*], *T. violaceum*, *T. album*, *Epidermophyton inguinale* [*E. floccosum*], *Microsporum audouini*, and *M. lanosum* [*M. canis*]. *Coccidioides immitis* and *Paracoccidioides brasiliensis* were scarcely affected and *Candida albicans* not at all.

1820. HICKY (R. J.) & HIDY (P. H.). **Crystalline fradicin.**—*Science*, 113, 2935, pp. 261-262, 1 graph, 1951.

In tests at the Research and Development Department, Commercial Solvents Corporation, Terre Haute, Indiana, with crystalline fradicin produced by *Streptomyces fradiae*, using agar dilution plates at pH 7.3 with nine days' incubation, *Candida albicans* and *Cryptococcus neoformans* were inhibited at a range of 2 to 4 µgm. per ml., *Microsporum canis* at 1 to 3, *Trichophyton mentagrophytes* at 3 to 5, *M. gypseum* at 3 to 10, and *Histoplasma capsulatum* (yeast phase) at 1 to 3. The LD 50 for mice was shown by intraperitoneal injection tests to be about 4 mg. per kg.

1821. LEÃO (A. E. DE A.) & CURY (A.). **Deficiencias vitaminicas de cogumelos patogenicos.** [Vitamin deficiencies of pathogenic fungi.]—*Mycopathologia*, 5, 1, pp. 65-90, 15 pl., 1950. [English summary, pp. 79-87.]

Of 60 strains of pathogenic fungi tested, 35 did not require for their growth thiamin (hydrochloride), riboflavin, pyridoxin (hydrochloride), nicotinic acid, calcium pantothenate, inositol, or biotin. Of the remaining 25, most required thiamin, but none needed riboflavin, pyridoxin, or calcium pantothenate.

1822. BRUECK (J. W.) & BUDDINGH (G. J.). **Propagation of pathogenic fungi in the yolk sac of embryonated eggs.**—*Proc. Soc. exp. Biol., N.Y.*, 76, 2, pp. 258-261, 1951.

In studies at the Louisiana University School of Medicine, New Orleans, the yolk sac of the developing chick embryo has proved to be eminently suitable for the propagation of *Actinomyces bovis*, *Nocardia asteroides*, *N. intracellularis*, *Sporotrichum schenckii*, *Histoplasma capsulatum* [Nos. 1689, 1921], *Cryptococcus neoformans* [No. 1864], and *Coccidioides immitis* [cf. No. 1666].

1823. SALVIN (S. B.). **Quantitative studies on the serologic relationships of fungi.**—*J. Immunol.*, 65, 6, pp. 617-626, 2 graphs, 1950.

A method is described for the procurement of antisera against *Aspergillus fumigatus*, *Blastomyces dermatitidis*, six species of *Candida*, *Cryptococcus neoformans*, and *Histoplasma capsulatum* [No. 1289].

A comparison of six isolates of *C. neoformans* as to their immunogenicity and serological activity revealed quantitative but not qualitative differences, as indicated by complement-fixation and agglutination tests and by quanti-

tative antibody-nitrogen determinations. As determined by complement-fixation studies, a strain of *Candida stellatoidea* cross-reacted more within the genus than any of the other species tested.

The results of agglutinin absorption studies indicated serological relationships between *B. dermatitidis* and *H. capsulatum*, and possibly between the former and *C. albicans* and *Cryptococcus neoformans*, which are also antigenically connected. There is a close serological relationship between *Candida albicans* and *C. stellatoidea*.

1824. KLIGMAN (A. M.) & MESCON (H.). **The periodic-acid-Schiff stain for the demonstration of fungi in animal tissue.**—*J. Bact.*, 60, 4, pp. 415-421, 8 figs., 1950.

The Hotchkiss-McManus stain (periodic-acid-Schiff-reagent technique) [the procedure for using which is described] for detecting fungi in tissue is stated to be superior to any staining method employed hitherto. It produces an intense selective staining of the fungal wall. The location of fungi in tissue may be readily determined by inspection under a low-power microscope. Emphasis is laid on the diagnostic value of the procedure.

1825. NILZÉN (Å.) & PALDROK (H.). **On the histaminolytic activity of fungi.**—*Acta derm.-venereol.*, Stockh., 30, 4, pp. 348-353, 2 graphs, 1950. [French and German summaries.]

Of a number of microscopic fungi investigated for their histaminolytic activity, certain members of the Fungi Imperfeci, notably *Aspergillus phoenicis* and *A. awamori*, exerted a powerful action on histamine hydrochloride, which was slight or absent, on the other hand, in *A. candidus*, *Candida robusta*, and *Microsporum gypseum*. A correlation was observed between the age of the cultures and their histaminolytic activity, which culminated at four days and then gradually declined in the case of pathogenic fungi, while in the non-pathogenic species histaminolysis reached a peak at ten days and thereafter remained stable. Extracts of *A. niger* retained strong histaminolytic activity after passage through a Seitz filter. As opposed to the so-called tissue histaminase, which is operative only within the temperature range from 20° to 60° C., the activity of the histaminolytic agent present in fungi of the *A. niger* group tends to increase at higher temperatures. A suspension of a species referred to this group retained its histaminolytic property after 12 hours' boiling.

1826. YEAGER (G. H.). **Evaluation of a new fungicide.**—*Sth. med. J.*, 44, 1, pp. 42-44, 1951.

An ointment containing 17 per cent. iso-par, a mixture of water insoluble isoparaffinic acids partially neutralized with iso-octyl hydroxybenzyl dialiphatic amines, has given promising results in the treatment of various complaints of proved or suspected mycotic origin, including otitis externa, pruritus ani, pruritus vulvae, and ulcerations of the legs and feet.

1827. ERDOS (J.). **Über die fungizide Wirkung einiger Kupferethylenediaminsulfonamidkomplexe.** [On the fungicidal action of some copper-ethylenediamine-sulphonamide complexes.]—*Experientia*, 6, 9, pp. 343-345, 3 graphs, 1950. [English summary.]

A method is described for the preparation of new sulpha complexes with copper, zinc, cobalt, and nickel. Their physical features are summarized and a formula is proposed for four containing copper (with sulphanilamide, sulphathiazol, sulphamethylthiazol, and sulphadiazin). In experiments at the Technical College, Mexico City, the inhibitory action of cupric complexes of thiazol, phthalyl-thiazol, succinyl-thiazol, acetyl-sulphanilamide, meracin, methyl-thiazol, diacin, piridin, and sulphanilamide at concentrations from 1 in 150,000 to 1 in 2,000 was tested against *Candida albicans*, *Epidermophyton floccosum*,

Hormodendrum [Phialophora] pedrosoi, *Blastomyces dermatitidis*, *Cryptococcus neoformans*, *Nocardia brasiliensis*, and *N. asteroides* on Sabouraud's dextrose agar.

Candida albicans, *E. floccosum*, and *Cryptococcus neoformans* were not inhibited even at the maximum concentration. *B. dermatitidis* failed to grow in the presence of all the complexes at 1 in 2,000, and in that of sulphamerazin also at 1 in 5,000. Sulphanilamide inhibited *P. pedrosoi* at 1 in 10,000, and diacin, piridin, and thiazol at 1 in 5,000. The development of *N. brasiliensis* was arrested by thiazol at 1 in 150,000 and meracin at 1 in 50,000, *N. asteroides* continued to grow in the presence of thiazol at 1 in 100,000.

1828. SOCÍAS. (A.). **Hipótesis de una etiología micósica del tracoma. Motivos para su establecimiento.** [Hypothesis of a mycotic etiology of trachoma. Reasons for its establishment.]—*Rev. Sanid. Hig. públ.*, 24, 6, pp. 422-443, 1950.

This is an exposition of the author's theory, based on a study of the relevant literature and personal observations in Spain, of the implication of moulds in the etiology of trachoma. Support is lent to this view by the prevalence of the disease among horticulturists, fishermen, workers in textile industries, and others brought into close contact with such organisms.

1829. ZIMMERMAN (L. E.). **Candida and Aspergillus endocarditis, with comments on the role of antibiotics in dissemination of fungus diseases.**—*Arch. Path.*, 50, 5, pp. 591-605, 4 figs., 1 graph, 1950.

Three unusual cases of disseminated mycotic disease are presented, illustrating the difficulties of differentiation between species of *Candida*, *Aspergillus*, and *Mucor*, *Cryptococcus neoformans*, and *Histoplasma capsulatum* as they appear in tissue sections. The causal organisms in these patients were *Candida guilliermondi* (female, 38 years) and undetermined species of *Aspergillus* in a 25-year-old soldier and a 32-year-old woman. Variations in staining reactions and morphological features often confuse the histopathological diagnosis of fungal disease, the accurate identification of which depends on cultural studies. Important factors in the origin of these infections include the administration of antibiotic drugs and marrow depressants, drug addiction, and metastasis of superficial lesions.

1830. IVANOV (X.). **Ustilagineous pneumonia in Cattle. The spores of Ustilago maydis as a pathogenic factor.**—*C. R. Acad. bulg. Sci.*, 2, 2-3, pp. 49-52, 3 figs., 1949.

Particulars are given of a severe outbreak of bronchopneumonia and vascular emphysema among cattle in north-western Bulgaria following the maize harvest of 1946. The drought of the preceding summer having destroyed all the other local cereal and forage crops, the animals had been fed on maize which was subsequently found to be infected by smut (*Ustilago maydis*) [cf. No. 654] and is believed to have been the cause of the disease.

1831. HERNANDEZ (I. MARIA). **Actinomicosis pulmonar en nuestro medio.** [Pulmonary actinomycosis in our midst.]—*Publ. Cent. Invest. tisiol., B. Aires*, 12, pp. 77-144, 1948. [B.A., 25, No. 5603.]

A study is described of cases of pulmonary actinomycosis occurring in Buenos Aires. Seven of the author's own cases are reported, which comprise the various anatomical and clinical types presented by actinomycosis of the lung.

1832. TELLO (E. E.) & CANCIO (C.). **Actinomicosis cervicofacial y sulfonas.** [Cervico-facial actinomycosis and sulphones.]—*Prensa méd. argent.*, 37, 16, pp. 821-822, 3 figs., 1950.

A typical case of cervico-facial actinomycosis in a 37-year-old woman resi-

dent at Cordoba, Argentina, was cured by oral administration, over a period of six weeks, of a sulphone derivative known as diasone in the form of tablets (a total of 96).

1833. WRIGHT (J. T.) & LOWEN (H. J.). **Aureomycin hydrochloride in actinomycosis.**—*J. Amer. med. Ass.*, 144, 1, pp. 21-22, 4 figs., 1950.

Actinomyces israeli was isolated from multiple draining sinuses in the left mandibular and supraclavical areas of a 72-year-old male negro patient at Harlem Hospital, New York. A course of 20 days' oral administration of aureomycin hydrochloride (0.5 gm. at six-hourly intervals) resulted in a complete cure.

1834. LITTMAN (M. L.), PHILLIPS (G. E.), & FUSILLO (M. H.). **In vitro susceptibility of human pathogenic Actinomycetes to chloramphenicol (chloromycetin).**—*Amer. J. clin. Path.*, 20, 11, pp. 1076-1078, 1950.

In laboratory experiments at the Walter Reed General Hospital, Washington, D.C., six strains of *Actinomyces israeli* were inhibited by concentrations of chloromycetin ranging from 1 to 3 microgm. per ml. on the basis of subculture end point, while their penicillin sensitivities extended from 0.005 to 0.1 units per ml. *Nocardia farcinica* was inhibited by 20 microgm. per ml. chloromycetin, but *N. intracellularis*, *N. madurae*, and *N. asteroides* withstood concentrations exceeding 56 microgm. per ml. Judging by these results, a clinical trial of the antibiotic in the treatment of actinomycosis would appear to be warranted.

1835. WASSERBAUER (Z.). **Aktinomykosa vnitřního genitálu ženy léčená streptomycinem.** [Actinomycosis of the female internal genitals treated with streptomycin.]—*Lékař. Listy*, 5, 8, pp. 231-233, 1950. [Russian, English, and French summaries.]

Penicillin (total of 10,200,000 units) having failed to effect a cure of severe abdominal actinomycosis in a 44-year-old female at Třebíč, Czechoslovakia, streptomycin was administered with highly beneficial results, although only 30 gm. was available.

1836. STANGE (H. H.). **Über die Wirkung der Penicillin-Röntgentherapie auf die Drüsen bei einem Fall von Parametritis actinomycotica.** [On the action of penicillin-röntgen therapy in a case of parametritis actinomycotica.]—*Geburts- u. Frauenheilk.*, 10, 8, pp. 622-632, 4 figs., 1950.

A full account is given of a very unusual case of parametritis actinomycotica in a 41-year-old patient at the Kiel University Gynaecological Clinic, who was cured by combined X-ray and massive penicillin therapy.

1837. JABŁOŃSKA (S.). **Spostrzeżenia Kliniki Dermatologicznej U. W. nad leczeniem promienicy penicylina.** [Treatment of actinomycosis with penicillin in the Dermatological Clinic at Warsaw University.]—*Polsk. Tyg. Lek.*, 4, 16, pp. 491-499, 7 graphs, 1949. [Abs. in *Dermatol. & Venereol. (Excerp. med., Sect. XIII)*, 5, 1, p. 32, 1951.]

Between 1945 and 1948, 16 cases of actinomycosis were treated with penicillin at the Warsaw University Dermatological Clinic and followed up for periods of six months to two years. The dosages ranged from 1,400,000 through 4,500,000 to 12,000,000 units, and the duration of the treatment from 17 to 33 days. The results were as follows: 11 cases recovered; three treated with more than 10,000,000 units recovered; two given less than 2,000,000 units did not respond. Local treatment was unsuccessful. No correlation was observed between the duration of the disease and the effect of the antibiotic.

1838. STRADA (R.). **Considerazioni cliniche e terapeutiche su di un caso di actinomicosi addominale.** [Clinical and therapeutical considerations on a case of abdominal actinomycosis.]—*Minerva med.*, 41 (1), 12, pp. 434–438, 1950.

This is a full report and discussion, in the light of the pertinent literature, on a case of abdominal actinomycosis, simulating appendicitis, in a 24-year-old female patient at the City of Turin Hospital. Excellent results were obtained by the intramuscular administration of penicillin to a total of 6,500,000 Oxford units.

1839. FÖLDVÁRI (F.). **Du traitement de l'actinomycose (résultats obtenus par la penicillinothérapie dans 15 cas).** [On the treatment of actinomycosis (results obtained with penicillotherapy in 15 cases).]—*Dermatologica*, 102, 2, pp. 77–88, 5 figs., 1951. [German and English summaries.]

Ten out of 15 cases of actinomycosis (*Actinomyces* [?*israeli*]) treated with penicillin at the dermatological clinic of the University of Eötvös Lórand, Budapest, were cured and five improved. The total dosage required ranged from 4,500,000 to 20,000,000 units. The cervico-facial localization responds to smaller doses of the drug than the pulmonal and abdominal.

1840. NETTROUR (W. S.). **Modern treatment of actinomycosis.**—*Pennsylvania med. J.*, 53, 10, pp. 1089–1091, 1950.

Following a brief review of the growth habits, appearance, and sensitivity to drugs of *Actinomyces bovis* [*A. israeli*], a case of advanced actinomycosis, involving the abdominal wall, stomach, liver gastrolic, and gastro-hepatic omentum in a 33-year-old male, is reported from Pittsburgh, Pennsylvania. A cure was effected by means of radical surgery combined with the pre- and post-operative administration of streptomycin and penicillin. The fungus is a normal inhabitant of the mouth which invades injured and ulcerated areas. Actinomycosis should always be considered in the presence of a sinus formation and stiff, woody swelling. Even in autopsy material the causal organism may be identifiable in only 60 per cent. of the cases.

1841. LINDEMANN (B.). **Die Aktinomykose-‘Pneumonie’.** [The actinomycosis-‘pneumonia’].—*Fortschr. Geb. Röntgenstrahl.*, 71, 5, pp. 727–735, 9 figs., 1949.

One of the forms of pulmonary actinomycosis, both primary and secondary, is differentiated as the ‘pneumonic type’. Three distinct roentgenologic pictures are presented, each of which is illustrated by a case from the St. Georg General Hospital, Hamburg.

1842. BORGEN (L. O.). **Infection with *Actinomyces muris ratti* after a Rat bite.**—*Acta path. microbiol. scand.*, 25, 3, pp. 161–166, 2 figs., 1948.

Actinomyces muris ratti was isolated from blood cultures of a 25-year-old female laboratory assistant who had been bitten by a rat on the third finger of the left hand. Treatment with sulphathiazole and penicillin resulted in rapid recovery from the high fever developing six days after the accident. This is the first case of infection by *A. muris ratti* following rat bite to be reported in Norway.

1843. ARTAGAVEYTIA-ALLENDE (R. C.). **Documentación gráfica del origen dental de la actinomicosis cérvicofacial.** [Graphic documentation of the dental origin of cervico-facial actinomycosis.]—*An. Inst. Hig. Montevideo*, 3, pp. 137–141, 3 figs., 1949.

Three cases of cervico-facial actinomycosis of dental origin are briefly described and illustrated by radiographs. *Actinomyces* was isolated from one of the patients.

1844. MORROW (MARIE B.) & WHEELER (EDNA C.). **Mold fungi in the etiology of respiratory allergic diseases. XIV. Fungi in aerobiological populations. The fungus flora of *Tillandsia* species (Ball and Spanish Moss.)**—*Ann. Allergy*, 8, 6, pp. 761-764, 785, 1950.

In experiments conducted at Austin, Texas, 1944 [cf. Nos. 1331-1333], about 65 species of fungi altogether were isolated from plant material, comprising the locally widespread *Tillandsia recurvata* and *T. usneoides* and cedar elm (*Ulmus crassifolia*), on which these mosses commonly grow, and from the air in three different parts of the town between February and April.

T. recurvata provided the highest total fungal counts (22×10^5), with individual counts of *Hormodendrum cladosporioides* (11×10^5), *Alternaria tenuis* (4×10^5), *Fusarium elegans* (1×10^5), *Phoma* sp. (3.5×10^5), and pale yeasts (17.5×10^5). It would appear from these observations that the ball and Spanish mosses may constitute potential hazards for hypersensitive persons.

1845. KEENEY (E. L.). **Hypersensitivity to pathogenic and non-pathogenic fungi.**—*Ann. intern. Med.*, 33, 2, pp. 418-430, 1950.

This is a discussion of the role of fungi as agents of allergic manifestations as reported in 54 contributions to the relevant literature. The subject-matter is classified under two general headings: (1) saprophytic fungi as excitants of hypersensitivity; and (2) pathogenic fungi and their associated immunological phenomena.

Because of the large number of species of the various genera of moulds in group (1), it is essential to study the fungal population of the in- and outdoor atmosphere of a patient suspected of mould hypersensitivity. Routine testing for allergy with a few mould extracts supplied by a commercial house is to be deprecated.

The clinical value, as aids in diagnosis, of antigens of the pathogenic organisms of group (2) are appraised, and recent advances made in the isolation of antigenic fractions from such fungi are reviewed.

1846. ORDMAN (D.). **Bronchial asthma associated with fungus-infected mattresses.**—*S. Afr. med. J.*, 24, 42, pp. 881-882, 1950.

A case of bronchial asthma in a 37-year-old male resident of Johannesburg is reported from the South African Institute of Medical Research. The complaint occurred exclusively during camping holidays at the seaside and was attributed to sleeping on a fungus-infected mattress. Skin tests performed with a combined extract of *Mucor*, *Penicillium*, and *Fusarium* isolated from the suspected material evoked a positive reaction, and the patient also proved to be sensitive to a number of other common atmospheric fungi.

1847. DÍAZ-RUBIO (M.), MUÑOZ (J.), & JIMÉNEZ ORTA (M.). **Studio de los géneros y especies de hongos existentes en el aire de Cádiz e influencias que determinan su presencia.** [A study of the genera and species of fungi occurring in the air of Cadiz and the influences that determine their presence.]—*Riv. clín. esp.*, 38, 4, pp. 280-289, 7 figs., 5 graphs, 1950. [English, German, and French summaries.]

During the year 1948-9 the authors obtained 133 cultures representing 29 genera of fungi from the air of Cadiz, Spain. Species of *Penicillium* were the most abundant, being represented by 118 isolates, belonging to 26 species, of which the most frequent were *P. umbonatum* (isolated 44 times), *P. notatum* (41), *P. digitatum* (28), *P. chrysogenum* (24), *P. meleagrinum* (23), and *P. elegans* (20). *Cladosporium* (mostly *C. herbarum*) came next in frequency (85 times), followed by *Alternaria* (53, mainly *A. humicola* and *A. geophila*), *Aspergillus* (38, *A. niger* predominating), *Macrosporium* (37, principally *M.*

[*Stemphylium*] *sarciniforme*), and *Rhizopus* (25, *R. nigricans* [*R. stolonifer*] and *R. nodosus*). Among the most frequent of the remaining genera were *Monilia* [? *Candida*], *Oospora*, *Hyalopus*, *Volutella*, *Botrytis*, *Botryotrichum*, *Corethropsis*, *Mucor*, and *Fusarium*.

The maximum incidence of *Penicillium* was reached during the period from May to September, while *Cladosporium* attained its peak in October to November, *Alternaria* in October, June, and November, and *Aspergillus* from June to November, with a climax in September.

1848. PASSARELLI (N.), DE MARANDA (M. P.), & DE CASTRO (C.). **A study of the incidence of air-borne fungi in the city of Rio de Janeiro.**—*Ann. Allergy*, 7, 3, pp. 334–338, 4 graphs, 1949.

From a study of the incidence of air-borne fungi at the Hospital São Francisco de Assis, Rio de Janeiro, Brazil, by weekly exposures of Petri dishes containing Sabouraud's conservation medium in 1943–4 and by fortnightly exposures in 1944–5, it is concluded that the following groups predominate: yeast (*Saccharomyces* type), *Hormodendrum*, *Rhodotorula*, *Penicillium*, *Aspergillus*, and *Fusarium*, constituting 88·9 per cent. of the total [see preceding entry]. The high monthly total counts of all fungi from June to October reflect the peak incidence during that period of *Hormodendrum*, and to a somewhat lesser extent of *Rhodotorula* and *Penicillium*.

1849. PIEKARSKI (J. W.). **An investigation of the role of fungi in patients with bronchial asthma and anthracnosis.**—*Ann. Allergy*, 8, 3, pp. 382–387, 1950.

The material for this study, begun in 1943 and continued in 1947–8, was furnished by 47 miners, mostly patients in the allergic clinic and medical wards of a general hospital in the heart of the anthracite coal region at Wilkes-Barre, Pennsylvania. About 75 per cent. of the workers had discontinued their occupation for periods ranging from one to ten years before the commencement of the investigation. The air of the mines was found to contain numerous spores of *Penicillium zaleskii* (tentative determination by Dr. C. W. Dodge) and a smaller number of *Stysanus stemonitis*. Seven (30 per cent.) of the first group of 20 workers gave slight or doubtful reactions to intradermal injections with extracts of *P. zaleskii* in dilutions containing 100 and 500 protein nitrogen units per ml. Six had been engaged in mining for 33 to 40 years and one for 28. In the second group of 27, doubtful reactions to an extract of the mould containing 100 protein nitrogen units per ml. were observed in five cases (21·3 per cent.), of whom four had been employed for upwards of 30 years and one for 15.

1850. VALLERY-RADOT (P.), HALPERN (B. N.), SECRETAINE (A.), & DOMART (A.). **Étude de la nature et de la densité de la flore mycologique dans l'atmosphère de Paris durant l'année 1948.** [Study of the nature and density of the mycological flora in the atmosphere of Paris during the year 1948.]—*Acta allergol.*, 3, 3, pp. 179–197, 5 figs., 2 graphs, 1950.

Species of *Hormodendrum* predominated among the fungi collected on Sabouraud's medium in Petri dishes in the air of Paris from 1st February, 1948 to 31st January, 1949, being represented by 2,556 colonies (36·8 per cent. of the total). Next in prevalence came [unspecified] yeasts (1,532 colonies, 22 per cent.), *Alternaria* (843, 12·2), *Penicillium* (447, 6·4), and *Phoma* (379, 5·5), *H.* and *A.* spp., and the yeasts attained a peak from June to October, while *Penicillium* spp. were most abundant during the winter. Other fungi isolated in the course of the studies included species of *Monilia* [? *Candida*], *Aspergillus*, *Fusarium*, *Botrytis*, and *Scopulariopsis*.

1851. BURTNESSE (H. I.) & ALLEN (SONIA E.). **Air-contaminant survey of Santa Barbara, California (1947-1948).**—*Ann. Allergy*, 8, 6, pp. 747-750, 2 graphs, 1950.

Using both the plate and slide methods (the former being apparently the more reliable), the writers made a survey of the fungal air-contaminants at Santa Barbara, California, in 1947 and 1948, both exceptionally dry years. *Hormodendrum* colonies were the most numerous [cf. No. 888] in both years (1,225 in 1947 and 891 in 1948 by the plate method), followed by *Alternaria* in the former year (217) and *Sporotrichum* in the latter (890). Among other genera represented were *Penicillium*, *Aspergillus*, *Epicoccum*, *Stemphylium*, *Macrosporium*, and *Botrytis*.

The survey also included pollen studies.

1852. STERN (S. G.) & KULVIN (M. M.). **Aspergillosis of the cornea.**—*Amer. J. Ophthal.*, 33, 1, pp. 111-116, 5 figs., 1950.

Aspergillus fumigatus was determined as the causal organism in a case of corneal infection in a 57-year-old male patient at the Veterans Administration Hospital, Hines, Illinois. Only a few reports of this comparatively rare disease have been published in North America, the most recent dating from 1922. A cure was effected by means of local iodine (potassium iodide) therapy.

1853. DONAHUE (H. C.). **Unusual mycotic infection of the lacrimal canaliculi and conjunctiva.**—*Amer. J. Ophthal.*, 32, 3, pp. 207-210, 2 col. figs., 1949.

A case of infection by *Aspergillus niger*, involving epiphora and discolouration of the inner aspect of the lower left eyelid in a 12-year-old girl, is reported from Boston, Massachusetts. Immediate recovery followed extrusion of a tenacious, black, viscid substance after incision of the lower punctum and pressure on the tear sac. A search through the relevant literature revealed no comparable case of obstruction of the lacrimal canaliculi and sac.

1854. RUSSO (G.) & GRAZIOSI (F.). **Sul potere patogeno sperimentale dell' Aspergillus nidulans.** [On the experimental pathogenicity of *Aspergillus nidulans*.]—*R. C. Ist. sup. San.*, 13, 1, pp. 46-56, 1950.

The intravenous injection into the pigeon of conidia of *Aspergillus nidulans* results in a necrotic nodular lesion of the liver and lungs. In severe cases the rapid death of the birds, leaving no time for the development of mycotic granulomata, is preceded by unco-ordinated movements and spastic pareses.

1855. GRAZIOSI (F.). **Sulla produzione dei periteci nell' Aspergillus nidulans (Eidam).** [On the production of perithecia in *Aspergillus nidulans* (Eidam).]—*Riv. Biol.*, N.S., 42, 1, pp. 109-110, 1949.

In the author's experiments at the University of Rome, the addition to Sabouraud's agar cultures of 1 per cent. peptone resulted in the total inhibition of perithecial production by *Aspergillus nidulans* [No. 1096]. A comparable effect was exerted by a number of amino acids. At low concentrations, however, these substances may be distinctly favourable to the development of perithecia. The influence of adrenalin on the same organism in Czapek-Dox cultures varied considerably with the hydrogen-ion concentration of the medium. Thus, at pH 5 it completely inhibited growth at a dosage of 1 in 20,000, whereas at 6 to 8 a marked stimulus to development was afforded. The accompanying profusion of perithecia in the latter case is attributable less to the drug itself than to its oxidation products, including an abundant black pigment in the mycelium.

1856. ALEXANDER (H.). **Primäre Mykose der menschlichen Lunge. Ein Beitrag zur Differentialdiagnose der Lungentuberkulose.** [Primary mycosis of the human lung. A contribution to the differential diagnosis of pulmonary tuberculosis.]—*Acta tuberc. scand.*, 32, 4, pp. 273–282, 4 figs., 1948.

Following a brief review of previous observations on pulmonary mycoses, the author describes a long-standing case of primary infection of the lung, originally diagnosed as bronchial asthma and later as asthma plus tuberculosis, in a woman who succumbed to the disease in a Swiss clinic at the age of 50. The fungus revealed at the autopsy was no longer culturable, but is believed to have been a species of *Aspergillus* or *Penicillium*.

1857. IVERSEN (LOUISE) & RØED (H.). **Et tilfelle av abort hos Storfe forårsaket av Aspergillus fumigatus.** [A case of abortion in Cattle caused by *Aspergillus fumigatus*.]—*Nord. VetMed.*, 2, pp. 992–996, 1950. [English and German summaries.]

The fungus presumed to be responsible for a case of infectious abortion in a cow from a herd in which the disease was prevalent at Sørumsand, Norway, was identified as *Aspergillus fumigatus*.

1858. JONCHÈRE (H.) & MARTIN (M.). **Blastomycose viscérale mortelle observée à Dakar.** [Fatal visceral blastomycosis observed at Dakar.]—*Bull. méd. Afr. occ. franç.*, 6, 1, pp. 103–108, 1949. [T.D.B., 47, 659.]

An African soldier aged about 25 years presented himself at hospital at Dakar suffering from hepatomegaly. Twenty-one days after admission the patient died. At autopsy the liver weighed about 5 kg. Its parenchyma had a finely granular appearance and the granules were granulomata of macrophage and giant cells filled with oval, thick-walled fungal cells measuring 8 to 12 μ in longer diameter. The fungus (which was not cultured) agreed closely with one found in an ulcerating granulomatous lesion of the skin of the cheek, and with one found in a pulmonary disorder. Comparison was also made with two cases of African histoplasmosis due to the large form of *Histoplasma capsulatum*, but the authors consider that their case and the two caused by a morphologically similar organism belong to the blastomycoses.

1859. GOLDMAN (L.) & O'HARA (H.). **Blastomycosis norteamericana. Revisión de diez y seis casos observados en el Hospital General de Cincinnati, Ohio (Estados Unidos), en el periodo 1937–1947, con seis exámenes post-mortem.** [North American blastomycosis. Review of sixteen cases observed in the General Hospital, Cincinnati, Ohio (United States), in the period 1937 to 1947, with six post-mortem examinations.]—*Rev. argent. Dermatosif.*, 34, 2, pp. 131–139 3 figs., 1950. [English summary.]

Sixteen cases of North American blastomycosis (*Blastomyces dermatitidis*) treated at the General Hospital, Cincinnati, Ohio (an endemic area), during the period from 1937 to 1947 are presented, with post-mortem observations in six. A synoptic table shows the clinical features of the disease and the other deep mycoses, namely, coccidioidomycosis (*Coccidioides immitis*), South American blastomycosis (*Paracoccidioides brasiliensis*), chromomycosis (*Phialophora verrucosa* and *Hormodendroides* [*Phialophora*] *pedrosoi*). Blastomycin hypo-sensitization and iodide, accompanied where practicable by plastic surgery, are the routine treatments of choice for the generalized forms of North American blastomycosis.

1860. LEHMAN (W. L.). **Blastomycosis in Oregon.**—*Northw. Med.*, 50, 1, pp. 39–40, 1951.

A case of blastomycosis (*Blastomyces dermatitidis*) involving the legs, arms, back, abdomen, and neck of a 47-year-old male patient is reported from the

Good Samaritan Hospital, Portland, Oregon. A cure was effected by means of potassium iodide and X-rays.

1861. LEVINE (S.) & NOVAK (M.). **Studies on the metabolism of Blastomyces dermatitidis. II. The effect of pH on respiration.**—*J. Bact.*, 60, 3, pp. 341-347, 4 graphs, 1950.

A study of the effect of hydrogen-ion concentration on the oxygen uptake of *Blastomyces dermatitidis* [No. 1340] in the presence of different substrata showed that the optimal for endogenous respiration and glucose oxidation was pH 6 to 8. In the presence of acetate respiration appeared to be optimal at pH 6, falling off in either direction. Sodium caprylate inhibited respiration at pH 3 and 4, but stimulated it at pH 6 and 8. Stimulation increased with a decrease in the hydrogen-ion concentration. Sodium pelargonate inhibited respiration at pH 6, but stimulated it at pH 8. The increase in stimulation by the higher fattyacid with increase in pH is attributed to the accompanying decrease in the concentration of the undissociated fatty acid.

1862. DRUMMOND (K. L.) & SMITH (J. D.). **Systemic blastomycosis.**—*Canad. med. Ass. J.*, 63, 6, pp. 598-599, 3 figs., 1950.

A case of systemic blastomycosis (*Blastomyces dermatitidis*) in a 44-year-old miner is reported from the Toronto Hospital for Tuberculosis, Weston, Ontario. The symptoms comprised pulmonary, osseous, and cutaneous lesions, which may easily be confused with those due to tuberculosis, blastomycosis being uncommon in the Province. Iodide therapy resulted in a marked improvement.

1863. REID (J. D.). **The influence of the vitamin B complex on the growth of Torulopsis (Cryptococcus) neoformans on a synthetic medium.**—*J. Bact.*, 58, 6, pp. 777-782, 1 fig., 1 graph, 1949.

In a study of the nutrient requirements of *Cryptococcus neoformans*, thiamine was the only member of the vitamin B group tested which stimulated growth. The addition of phosphates and thiamine to Sabouraud's medium made it suitable for maximum growth of the organism. The stimulation to the growth of *C. neoformans* induced by the addition of these two components either to a synthetic medium or to Sabouraud's medium suggests that the function of the vitamin may, perhaps, be that of cocarboxylase.

1864. KLIGMAN (A. M.), CRANE (A. P.), & NORRIS (R. F.). **Effect of temperature on survival of Chick embryos infected intravenously with Cryptococcus neoformans (Torula histolytica).**—*Amer. J. med. Sci.*, 221, 3, pp. 273-278, 1951.

The results of previous experiments showed that the intravenous infection of chick embryos with *Cryptococcus neoformans* [Nos. 1359, 1822] results in nearly 100 per cent. mortality. In a further series of tests at the University of Pennsylvania School of Medicine, incubation at 39°, 40°, 41° C. markedly increased the rate of survival. At 40°, in fact, all the organisms were completely destroyed in eight days. It would appear, therefore, that fever therapy is a possible therapeutic adjunct in the treatment of human torulosis.

1865. CARTER (H. S.) & YOUNG (JEAN L.). **Note on the isolation of Cryptococcus neoformans from a sample of milk.**—*J. Path. Bact.*, 62, 2, pp. 271-273, 1 pl., 1950.

The autopsy at the Glasgow Bacteriological Laboratory on a guinea-pig which died on the 41st day after inoculation with the centrifuged deposit from 50 ml. milk (part of a bulk sample from a tuberculin-tested herd of 25 cows) revealed the presence of *Cryptococcus neoformans* in various organs.

1866. KÖHLMEIER (W.) & NIEL (K.). Über einen Fall von Torulose, europäischer Blastomykose. [On a case of torulosis, European blastomycosis.]—*Wien. klin. Wschr.*, 62, 6, pp. 97–98, 1950.

A case of blastomycosis (*Torulopsis [Cryptococcus] neoformans*) in a 74-year-old male patient is reported from the Municipal General Polyclinic, Vienna. The fungus was isolated from the sputum, duodenal fluid, faeces, blood, and sternal punctures, and its pathogenicity demonstrated by animal inoculation experiments. A cure was effected by means of sulphonamides, penicillin, and iodine. In *in vitro* tests the organism proved resistant to streptomycin and penicillin but susceptible to chinosol and yatrene.

1867. GENDEL (B. R.), ENDE (M.), & NORMAN (S. L.). Cryptococciosis. A review with special reference to apparent association with Hodgkin's disease.—*Amer. J. Med.*, 9, 3, pp. 343–355, 4 figs., 1950.

This review of the available information on cryptococciosis (*Cryptococcus neoformans*) is based on 81 contributions to the pertinent literature. The total number of cases reported, including two of the authors', male patients aged 62 (white) and 39 (coloured) at the Kennedy Hospital, Memphis, Tennessee, is 165, in 14 of which there was coincident Hodgkin's disease. Two possible explanations for the association between these two uncommon diseases are advanced.

1868. RATCLIFFE (H. E.) & COOK (W. R.). Cryptococciosis: review of the literature and report of a case, with initial pulmonary findings.—*U.S. Armed Forces med. J.* (unification of *Bull. U.S. Army med. Dep.* and *U.S. nav. med. Bull.*), 1, 9, pp. 957–969, 5 figs., 1950.

A perusal of the relevant literature disclosed 127 proved cases of cryptococciosis (*Cryptococcus neoformans*). No treatment has been consistently beneficial. Surgical removal of the affected lobe of the lung is recommended for patients with localized pulmonary involvement. A fatal case of the disease in a 30-year-old patient is reported from the Brooke Army Hospital, Fort Sam Houston, Texas.

1869. VARGAS (A.). Cryptococciosis (o torulosis) pulmonar (con excepcional reacción hemática). I. Sección: estudio clínico. [Pulmonary cryptococciosis (or torulosis) (with an exceptional haematic reaction). Section I: clinical study.]—*Rev. méd. Valparaíso*, 3, 1, pp. 42–52, 2 figs., 1950.

A fatal case of pulmonary cryptococciosis (*Cryptococcus neoformans*) [see next entry] in a 67-year-old female patient is reported from the Hospital Van Buren, Valparaíso, with a useful summary of information on the history, incidence and geographical distribution, etiology, mycology, symptomatology, pathological anatomy, prognosis, treatment, and other aspects of the disease, of which this is the first record for Chile. The haematic reaction presented exceptional and apparently undescribed features.

1870. HONORATO (A.) & APABLAZA (H.). Cryptococciosis pulmonar. II. Sección: estudio experimental. [Pulmonary cryptococciosis. Section II: experimental study.]—*Rev. médica Valparaíso*, 3, 1, pp. 53–59, 6 figs. (4 col.), 1950. [English summary.]

Microscopic examination of the sputum of the case of pulmonary cryptococciosis described in the preceding entry revealed large numbers of bodies, which were referred on morphological and biochemical grounds to *Cryptococcus neoformans*. They were associated with an intense inflammatory reaction of the histiocytes and heavy parasitization of Langhans's cells. The strain under observation proved to be highly pathogenic to laboratory animals inoculated

with either the sputum or pure cultures. The lesions thus obtained were identical with those found in human cases.

1871. NEILL (J. M.), ABRAHAMS (I.), & KAPROS (C. E.). **A comparison of the immunogenicity of weakly encapsulated and of strongly encapsulated strains of *Cryptococcus neoformans* (*Torula histolytica*).—*J. Bact.*, 59, 2, pp. 263–275, 1 pl., 1 fig., 1950.**

In this study the authors separated agar slant cultures of 15 strains of *Cryptococcus neoformans* into three groups: predominantly weakly encapsulated, predominantly strongly encapsulated, and mixtures in which neither form predominated. Vaccines from the first group had a much greater immunogenic capacity than those from the second. Reasonably potent anti-sera were always obtained in a total period of 20 days by using 13 daily injections of about 250,000,000 cells of the weakly encapsulated strains per injection.

Weakly and strongly encapsulated forms, separated from cultures by plating, showed the same difference in immunogenic capacity as that observed between the cultures of the predominantly weakly and predominantly strongly encapsulated strains.

'Quellung' tests showed that in some instances antibodies reactive with antigens on the capsules of a highly encapsulated form of a species are produced more readily by immunization with a weakly than with a strongly encapsulated form.

1872. DROUHET (E.), SEGRETAIN (G.), & AUBERT (J. P.). **Polyoxide capsulaire d'un champignon pathogène *Torulopsis neoformans*. Relation avec la virulence.** [Capsular polyoxide of a pathogenic fungus, *Torulopsis neoformans*. Relation with virulence.]—*Ann. Inst. Pasteur*, 79, 6, pp. 891–900, 6 figs., 2 graphs, 1950.

The capsule of *Torulopsis* [*Cryptococcus*] *neoformans*, constituted by a polyoxide [Nos. 1120, 1122], is of great importance, not only in relation to the morphology of the cell and of the colonies, but also to the pathogenicity of the fungus. In inoculation experiments on mice and guinea-pigs the virulence of the organism was found to be directly correlated with the thickness of the capsule, which consists of a high proportion of xylose and mannose and a small amount of uronic acid linked with mannose.

1873. HAZEN (ELIZABETH L.) & BROWN (RACHEL). **Fungicidin, an antibiotic produced by a soil Actinomycete.**—*Proc. Soc. exp. Biol., N.Y.*, 76, 1, pp. 93–97, 2 figs., 1 graph, 1951.

Two antibiotics with different chemical and biological properties have been isolated from a species of *Streptomyces* [*Actinomyces*] occurring in farm soil in Fauquier County, Virginia. One is extracellular and resembles actidione. The other, designated fungicidin, is intracellular and appears to be of value in the therapy of histoplasmosis (*Histoplasma capsulatum*) and cryptococcosis (*Cryptococcus neoformans*) experimentally induced in mice.

1874. CHAVARRÍA (A. P.), BONILLA (M. A.), DÍAZ (M. F.), & CASTRO JENKINS (A.). **Apuntes sobre un nuevo caso de granuloma paracoccidioides en Costa Rica.** [Notes on a new case of paracoccidioidal granuloma in Costa Rica.]—*Rev. méd. C. R.*, 16, 179, pp. 369–375, 2 figs., 1949. [Abs. in *Intern. Med. (Excerpt. med.)*, Sect. VI, 4, 11, p. 1641, 1950.]

Following extraction of a molar tooth, the patient developed ulceration of the gums and palate and later multiple nodules in the neck, accompanied by signs of pulmonary tuberculosis. Pus aspirated from the nodules yielded

Paracoccidioides brasiliensis, while tubercle bacilli were present in the sputum, both diagnoses being confirmed at autopsy.

1875. CANCELA-FREIJO (J.). **Paracoccidioidomycosis. Tres nuevos casos encontrados en el Uruguay.** [Paracoccidioidomycosis. Three new cases encountered in Uruguay.]—*Hoja tisiol.*, 8, 2, pp. 89–101, 22 figs., 1948.

Three new cases of paracoccidioidomycosis (*Paracoccidioides [brasiliensis]*) are reported from Montevideo, in male patients 52, 47, and 37 years old at the Oto-Rhino-Laryngological Clinic of the Faculty of Medicine, bringing the total for Uruguay to five. The fungus was cultured in two of the cases. One patient responded very favourably to sulphatherapy.

1876. RADICE (J. C.) & KAPLAN (S.). **Blastomicosis por Paracoccidioides brasiliensis. Estudio anatopatológico y coloración fluorescente del parasito.** [Blastomycosis caused by *Paracoccidioides brasiliensis*. Anatomical-pathological study and fluorescent staining of the parasite.]—*Rev. Asoc. argent. Dietol.*, 6, 24, pp. 311–326, 8 figs., 1948.

Following a general introductory statement on South American blastomycosis (*Paracoccidioides brasiliensis*) and observations on predisposing factors, virulence, clinical forms, morphology of the parasite, pathogenesis, and mode of infection and propagation, the authors fully describe the post-mortem examination in a generalized case of the disease in a male patient at the Hospital Parmenio Piñero, Buenos Aires. Primulin [Nos. 1368, 1370] 1 in 5,000 was used for staining the tissue sections.

1877. MACKINNON (J. E.) & GURRI (J.). **Morfología y mecanismo de multiplicación de Paracoccidioides brasiliensis en su forma parasitaria, estudiada por el método del carbonato de plata.** [Morphology and mechanism of reproduction of *Paracoccidioides brasiliensis* in its parasitic phase, studied by the silver carbonate method.]—*An. Fac. Med. Montevideo*, 35, 7, pp. 1033–1037, 8 figs., 1950. [English summary.]

After inoculation with the yeast-like or multiple budding form of *Paracoccidioides brasiliensis*, the testicles of guinea-pigs were fixed for a week in 10 per cent. formalin, sectioned after freezing, and stained with a dilute solution of silver carbonate. Examination of the treated material revealed an outer argentophylllic membrane, as demonstrated by Bogliolo [No. 1128], as well as by the senior author and collaborators [No. 1351] with Best's carmine stain. In the budding process culminating in the yeast-like phase, the buds push the thin membrane or capsule without rupturing it. The pedicel is so narrow and its membrane so thin that it is not easily discernible. Once a daughter cell has formed the proximal part of its own membrane, the pedicel ruptures and an orifice remains in the membrane of the depleted mother cell. These orifices are quite apparent in dead cells which have already produced their buds and represent the remains of the budding process.

1878. WOOLDRIDGE (W. E.) & HOFFMAN (MARY). **A new antifungal principle produced by Streptomyces fradiae.**—*J. invest. Derm.*, 15, 5, pp. 351–353, 1 fig., 1950.

The authors report the discovery of a new anti-fungal principle of *Streptomyces fradiae* [No. 1820], distinct from Waksman and Lechevalier's neomycin (*Science*, 109, pp. 305–307, 1949) and the fradicin of Swart *et al.*, and propose to designate it neomycin C. It proved to be effective *in vitro* in Sabouraud's broth against a number of 'deep' fungi, including *Nocardia brasiliensis* at 0.5 units per ml., *Phialophora verrucosa* (2.5), *P. pedrosoi* (5), *N. madurae* (25), and *N. asteroides* (50).

1879. FARINA (R.). **Tratamento cirúrgico da cromomicose.** [Surgical treatment of chromomycosis.]—*Rev. Hosp. Clín.*, 5, 1, pp. 33–36, 3 figs., 1950. [English summary.]

Two cases of chromomycosis (*Phialophora* sp.) of the leg in males (one white, 65 years old, and one negro, 39) are reported from the Faculty of Medicine, University of São Paulo, Brazil. They were treated by wide exeresis of all soft tissue down to the aponeurosis, to which a split skin graft of intermediate thickness is directly applied to repair the extensive loss of substance. Associated therapy with iodides is recommended to prevent a relapse.

1880. PEREIRA (M. J.). **O pé musgoso de Thomas e a cromoblastomicose no Rio Grande do Sul e em Santa Catarina. Identificação dos fungos patogénicos do gênero *Phialophora*, Thaxter, 1915. Resultados terapêuticos.** [Thomas's mossy foot and chromoblastomycosis in Rio Grande do Sul and in Santa Catarina. Identification of the pathogenic fungi of the genus *Phialophora* Thaxter, 1915. Therapeutical results.]—*Rev. Med. R. Grande Sul*, 6, 32, pp. 66–99, 21 pl. (2 col.), 1949.

Following a comprehensive review (68 titles) of the literature on chromoblastomycosis (*Phialophora verrucosa*, *P. pedrosoi*, and *P. compacta*), the author reports on his study of 17 cases in the State of Rio Grande do Sul, Brazil, of which 16 were caused by *P. pedrosoi* and one by *P. verrucosa*. Testicular inoculation of the guinea-pig is recommended as an adjunct to the usual methods of diagnosis. Three cases of 'mossy foot' of the African or bacterial type are also presented.

1881. JONEZ (H. D.). **Coccidioidomycosis treatment with histamine.**—*Ann. Allergy*, 7, 3, p. 395, 1949.

Coccidioidomycosis (*Coccidioides immitis*) of the disseminating type, known as coccidioidal granuloma (one case in 500), produces a high metabolic rate, eosinophilia, and other allergic symptoms, especially those associated with large doses of histamine or related substances. In one case histamine was administered intravenously and subcutaneously to build up tolerance of the drug, with the result that the clinical symptoms rapidly subsided and a cure was apparently effected.

1882. GLUSKER (D.), FUENTES VILLALOBOS (P.), and GÓMEZ DEL CAMPO (C.). **Ocurrencia de intradermorreacciones a la coccidioidina, brucelina, histoplasmina, haplosporangina y tuberculina, con relación a los rayos X, en conscriptos del Ejercito Mexicano.** [Occurrence of intradermal reactions to coccidioidin, brucellin, histoplasmin, haplosporangin, and tuberculin, in relation to X-rays, among conscripts of the Mexican Army.]—*Bul. Ofic. sanit. panamer.*, 29, 7, pp. 715–722, 1950.

Cutaneous tests for coccidioidomycosis [*Coccidioides immitis*], brucellosis, histoplasmosis [*Histoplasma capsulatum*], haplosporangiosis [*Haplosporangium parvum*], and tuberculosis were conducted on 7,013 recruits reporting for military training from different States of Mexico. Of this number, 5,360 constituted a 'pure' population, having never left their birthplaces. Analyses of the reactions of the latter group confirmed previous observations as to the predominance of tuberculosis in urban and of histoplasmosis in rural areas. For instance, in the city of Mexico (2,500,000 inhabitants), the percentages of positive reactors to these two diseases were 44 and 3·4, respectively, compared with 8 and 43, respectively, in the State of Chiapas. Other States for which a high incidence of histoplasmosis is indicated by the results of the tests are Nayarit, Guerrero, Sonora, San Luis Potosí, and Colima. From the lack of significant responses to haplosporangin it is concluded that *H. parvum* is

non-pathogenic to man. The maximum percentage of reactors to coccidioidin came from the States of Sonora (67), Chihuahua, Colima, and Lower California—all except Colima on the United States frontier. Correlations of the data obtained in cutaneous tests and X-ray examination are presented for 4,696 cases.

1883. KRITZER (M. D.), BIDDLE (MARJORIE), & KESSEL (J. F.). **An outbreak of primary pulmonary coccidioidomycosis in Los Angeles County, California.**—*Ann. intern. Med.*, 33, 4, pp. 960-990, 5 figs., 2 charts, 1950.

In connexion with an outbreak of primary pulmonary coccidioidomycosis (*Coccidioides immitis*) in Los Angeles County, California, a comprehensive review of the available information on the disease is presented, together with detailed reports on seven cases (16- to 19-year-old male workers in a forestry camp) treated at the Los Angeles County Hospital.

1884. GÓMEZ (R. F.). **Endemism of coccidiomycosis in the Paraguayan Chaco.**—Reprinted from *Calif. Med.*, 73, 1, 4 pp., 1 map, 1950.

Skin tests for coccidiomycosis [*Coccidioides immitis*] on 541 men in the Paraguayan Chaco [No. 1670] showed that in two hot, dry, windy areas positive reactions developed in a considerable number of the employees of an oil company who differed in racial origin, as well as in native Indians. In a third, rainy area with bush vegetation only 2 per cent. of 250 Indians tested gave a positive reaction.

1885. CAMPINS (H.), SCHARYJ (M.), & GLUCK (VERA). **Coccidiomicosis (enfermedad de Posadas). Su comprobación en Venezuela.** [Coccidiomycosis (Posadas' disease). Its verification in Venezuela.]—Reprinted from *Arch. venez. Pat. trop. Parasit. med.*, 1, 2, 20 pp., 12 figs., 1949.

Full details are given of a six years' old infection of the back of the hand of a female patient, caused by *Coccidioides immitis*, this being the first record of the disease from Venezuela.

1886. GONZÁLEZ OCHOA (A.). **Coccidioidomycosis. Algunos conceptos actuales del padecimiento con especial mención del problema mexicano.** [Coccidioidomycosis. Some up-to-date views on the disease, with special reference to the Mexican problem.]—*Prensa méd. mex.*, 14, 7-8, pp. 246-252, 1949. [Abs. in *Intern. Med. (Excerp. med.)*, Sect. VI, 4, 11, pp. 1639-1640, 1950.]

Intradermal tests with coccidioidin [*Coccidioides immitis* antigen] on 495 inhabitants of the town of Sonora and the North Territory of the Gulf of California yielded 79 positive results, 21 males and 58 females. The maximum incidence fell between the ages of 10 and 20. The first human case was described in 1948, the clinical picture resembling pulmonary tuberculosis. The disease is suspected to be endemic in the above-mentioned areas.

1887. STOOPS (C. W.) & JOHNSON (S. A. M.). **Coccidioidomycosis : report of a case with cutaneous, osseous, pulmonary, and neurologic manifestations.**—*Wis. med. J.*, 49, 2, pp. 125-128, 1 fig., 1950.

From the Wisconsin General Hospital, Madison, the authors report a case of disseminated coccidioidomycosis (*Coccidioides immitis*) in a 33-year-old male patient who had acquired the infection in California but developed no symptoms until he came to live in Wisconsin, where this form of the disease had not previously been observed. There was no marked response to attempted therapy with drugs, but surgical treatment resulted in some improvement.

History of residence long or short in endemic areas (the period in this case was three years) calls for the following diagnostic procedures where coccidioidomycosis is suspected: (1) intracutaneous tests with coccidioidin; (2) cul-

ture and animal inoculation to demonstrate the fungus; (3) biopsy studies of tissues; (4) complement fixation tests on the patient's serum; (5) roentgenologic studies; and (6) blood studies, including sedimentation rate.

1888. COTTON (B. H.) & BIRSNER (J. W.). **Surgical treatment in pulmonary coccidioidomycosis. Preliminary report of thirty cases.**—*J. thorac. Surg.*, 20, 3, pp. 429-443, 9 figs., 1950.

A tabulated survey is given of 30 cases of pulmonary coccidioidomycosis [*Coccidioides immitis*] at Beverly Hills, California, in which surgical intervention was undertaken with highly encouraging results. The procedures employed were pneumonectomy (5), lobectomy (11), segmental lobectomy (8), wedge resection with decortication (5), and decortication plus thoracoplasty (1).

1889. REINGOLD (I. M.). **Myocardial lesions in disseminated coccidioidomycosis.**—*Amer. J. clin. Path.*, 20, 11, pp. 1044-1049, 2 figs., 1950.

In four cases of disseminated coccidioidomycosis (*Coccidioides immitis*) in male patients aged 27, 33, 40, and 60 at the Veterans Administration Hospital, Long Beach, California, sections of the heart revealed non-specific myocarditis in three and a specific granuloma in one.

1890. HOEKENGA (M. T.) & TUCKER (H. A.). **Sensibilidad a la histoplasmina y a la coccidioidina en Honduras. Informe sobre 300 enfermos.** [Sensitivity to histoplasmin and coccidioidin in Honduras. Report on 300 patients.]—*Bol. ofic. Sanit. panamer.*, 29, 11, pp. 1135-1138, 1950. [English summary.]

Of 300 male natives of Honduras tested intradermally with histoplasmin and coccidioidin (*Histoplasma capsulatum* and *Coccidioides immitis* antigens) at a dilution of 1 in 100 at the La Lima Hospital, 125 (40·2 per cent.) reacted positively to the former and 14 (4·1) to the latter. Only one case of histoplasmosis has been recorded from Honduras (in 1926), and coccidioidomycosis is so far unknown [No. 1924]. The interpretation of these data must await future developments, i.e., either the identification of the pathogens in question or the demonstration of other causes of intradermal sensitivity. In the light of present evidence, the latter hypothesis appears to be the more plausible.

1891. MACKINNON (J. E.), ARTAGAVEYTIA-ALLENDE, VINELLI (H.), NIÑO (F. L.), FERRADA-URZÚA (L. V.), ALONSO (G.), & DONOSO (R.). **Investigaciones sobre la sensibilización a la coccidioidina y su significado en varias zonas de los países meridionales de América del Sur.** [Investigations on coccidioidin sensitivity and its significance in various zones of the southern countries of South America.]—*An. Fac. Med. Montevideo*, 35, 8, pp. 1117-1137, 1950. [English summary.]

Of 977 persons (452 males and 525 females) tested in Uruguay with coccidioidin (*Coccidioides immitis* antigen), nine (0·92 per cent.) reacted positively (three males and six females). Of 360 (125 males and 235 females) tested with both coccidioidin and histoplasmin (*Histoplasma capsulatum* antigen), 38 (10·55 per cent.) reacted positively (14 males and 24 females) to histoplasmin and only one to coccidioidin.

In Argentina coccidioidin tests were performed on 833 individuals (486 males and 347 females), of whom 24 (2·88 per cent.) reacted positively (17 males and 7 females).

In Chile the results of tests with coccidioidin on 170 persons, and with coccidioidin and histoplasmin on 50, were uniformly negative.

1892. BURKE (RUTH C.). **In vitro cultivation of the parasitic phase of *Coccidioides immitis*.**—*Proc. Soc. exp. Biol., N.Y.*, 76, 2, pp. 332-335, 8 figs., 1951.

From Harvard University the writer reports the *in vitro* cultivation of seven strains of *Coccidioides immitis* at 37° C. on a medium consisting of 250 ml.

each of coco-nut milk and distilled water, 500 ml. Knop's solution (half strength), 10 drops of Berthelot's solution of trace elements, 3 per cent. dextrose, 1 per cent. mashed agar, cysteine 10^{-6} , thiamine 10^{-5} , and naphthalene acetic acid 10^{-7} . Sporangia were formed in varying numbers by all the strains after incubation periods ranging from 11 days to 10 weeks and were indistinguishable at maturity from those which develop on living animal tissues.

1893. CONAN (N. J.) & HYMAN (G. A.). **Disseminated coccidioidomycosis. Treatment with protoanemonin.**—*Amer. J. Med.*, 9, 3, pp. 408-413, 2 figs., 1950.

A case of disseminated coccidioidomycosis (*Coccidioides immitis*) in a 30-year-old female patient is reported from the Presbyterian Hospital, New York. A granulomatous but asymptomatic endometritis was discovered two months after the birth of a baby in an endemic area for the fungus, and three months later symptoms of generalized disease developed. Pulmonary lesions did not appear, however, until nearly two years after the establishment of uterine infection. The disease became fulminating and terminated fatally $2\frac{1}{2}$ years after its onset, despite the use of protoanemonin, an antibiotic extracted from some species of Ranunculaceae, which in *in vitro* tests prevented the growth of the fungus isolated from the blood.

1894. COHEN (R.) & BURNIP (R.). **Miliary coccidioidomycosis of the lungs. Report of a case in a child.**—*Ann. west. Med. Surg.*, 3, 12, pp. 413-414, 2 figs., 1949. [T.D.B., 47, 93.]

A case of miliary infection of the lungs by *Coccidioides immitis* in a seven-year-old negro girl (believed to be the first of this type in a child) is reported from the Kern County General Hospital, Bakersfield, California. Material aspirated from a lesion in the lumbar area simulating Pott's disease yielded a pure culture of the fungus, while blood culture, complement-fixation, and precipitin tests were also positive. Death occurred 56 days after the onset of the symptoms, many of which resembled those of tuberculosis.

1895. JELLISON (W. L.). **Haplomycosis in Montana Rabbits, Rodents, and Carnivores.**—*Publ. Hlth Rep.*, Wash., 65, 33, pp. 1057-1063, 1 fig., 1950.

The following hosts have been found in western Montana harbouring *Haplosporangium* sp., the agent of a pulmonary disease of mammals [No. 1673]: beaver (*Castor canadensis*), muskrat (*Ondatra zibethica*), pine squirrel (*Tamiasciurus hudsonica*), and white-footed deer mouse (*Peromyscus maniculatus*) of the order Rodentia; rock rabbits (*Ochotona princeps*) and cottontails (*Sylvilagus nuttallii*) of the order Lagomorpha; and mink (*Mustela vison*), pine marten (*Martes americana*), skunk (*Mephitis hudsonica*), and weasel (*Mustela frenata*).

1896. CANCELA FREIJO (J.). **Histoplasmosis. Enfermedad de Darling.** [Histoplasmosis. Darling's disease.]—*Monogr. Fac. Med. Montevideo*, 5, 128 pp., 29 figs., 1 graph, 3 maps, 1950. [English summary.]

This thesis on histoplasmosis (*Histoplasma capsulatum*) comprises ten chapters entitled (I) definition, (II) history, (III) epidemiology, (IV) etiological circumstances, (V) the etiological agent, (VI) pathological anatomy, (VII) symptomatology, (VIII) diagnosis, (IX) evolution and prognosis, and (X) treatment. Reports on the two Uruguayan cases of the disease already published [No. 314] (*Hoja tisiol.*, 7, pp. 207-211, 1947) are included. A bibliography of 220 titles is appended.

1897. LIMA (A. O.) & GUIMARAES (N.). **O problema da histoplasmose benigna.** [The problem of benign histoplasmosis.]—*Hospital, Rio de J.*, 36, 6, pp. 939-946, 1949.

The problem of benign histoplasmosis (*Histoplasma capsulatum*) is discussed in the light of 36 contributions to the pertinent literature.

1898. CRADDOCK (W. L.). **The problem of histoplasmosis.**—*Mississippi Valley med. J.*, 72, 1, pp. 15-19, 1950.

The problem of histoplasmosis (*Histoplasma capsulatum*) is discussed in the light of 33 contributions to the relevant literature.

1899. LITTLE (J. A.). **Histoplasmosis: a review and report of cases seen at the Children's Hospital.**—*Sth. med. J.*, 43, 10, pp. 909-914, 1950.

Following a brief survey of the historical background, pathological findings, clinical description, treatment, and epidemiology of histoplasmosis (*Histoplasma capsulatum*), the author reports six cases (five fatal) in patients (five infants, one 14 years) at the Children's Hospital, Cincinnati, Ohio.

1900. PRIOR (J. A.), WILCE (J. W.), & PALCHANIS (W.). **Geographic distribution of pulmonary calcification among University students in Ohio.**—*Publ. Hlth Rep. Wash.*, 65, 35, pp. 1132-1138, 1 graph, 1 map, 1950.

Studies on 4,829 students (3,844 males and 985 females) by means of chest X-ray, tuberculin, and histoplasmin tests, conducted in the autumns of 1946 and 1948, demonstrated that the distribution of the prevalence of pulmonary calcification in Ohio followed a definite geographical pattern very closely paralleling that of histoplasmin [*Histoplasma capsulatum* antigen] but not of tuberculin reactors [No. 1882]. The prevalence of both pulmonary calcification and histoplasmin reactors tends to be higher in the rural than in the urban areas, whereas tuberculin reactors preponderate in the latter. These data lend support to the growing belief that most pulmonary calcifications in Ohio and other Middle Western States are probably associated with a widespread benign form of histoplasmosis or one or more antigenically related agents.

1901. KOTCHER (E.) & LEIKIN (S.). **Histoplasmosis of infants with a report of seven cases.**—*J. Kentucky med. Ass.*, 48, 10, pp. 459-466, 2 figs., 1950.

On the basis of histoplasmin skin test surveys and the present series of cases, histoplasmosis (*Histoplasma capsulatum*) appears to be a relatively common disease in Kentucky. The ages of the seven infants (one from Indiana) under the authors' care between 1947 and 1949 ranged from four to 7½ months and two were females. Five of the patients died, one was known to be alive in January, 1950, and the seventh could not be traced. The clinical findings were very similar to those reported in previous papers.

1902. PANISSET (M.). **Les histoplasmoses animales et l'histoplasmosse humaine.** [Animal histoplasmoses and human histoplasmosis]—*Canad. J. comp. Med. vet. Sci.*, 14, 9, pp. 287-295, 1950. [B.A., 25, No. 5607.]

Work among schoolchildren in Quebec and members of an Indian tribe showed that, apart from the rare clinical cases of *Histoplasma capsulatum*, skin sensitivity to histoplasmin is often present. Infection was demonstrated in various species of animals. It can be detected by pathological examination, culture of organs, search for antibodies, or cutaneous sensitivity.

1903. CAMPBELL (CHARLOTTE C.) & SASLAW (S.). **Failure of streptomycin to enhance the infectivity of *Histoplasma capsulatum* in Mice.**—*Publ. Hlth Rep., Wash.*, 66, 1, pp. 16-19, 1951.

Under the conditions of the experiments herein reported from the Army Medical Department Research and Graduate School, Washington, D.C., streptomycin concentrations ranging from 0.05 to 5 mg., administered in daily intraperitoneal doses for 30 days, failed to accelerate the fatality rate of mice inoculated with the yeast phase of *Histoplasma capsulatum* [cf. No. 1692].

1904. STRAUGHN (R. A.) & SCHAFER (E. L.). **Histoplasmosis. Report of a case.**—*Jackson Clin. Bull.*, 12, 1, pp. 12-14, 1950. [Abs. in *Intern. Med. (Excerpta med., Sect. VI)*, 4, 11, p. 1641, 1950.]

A 70-year-old male patient at the Jackson Clinic, Madison, Wisconsin, presented a picture of weakness, fever, slight anaemia, progressive leucopenia with predominance of the lymphocytes, and a very high blood sedimentation rate. An ulcer subsequently developed on the left side of the mouth. Intracytoplasmic bodies characteristic of *Histoplasma capsulatum* were detected in the para-aortic glands at autopsy.

1905. GONZÁLEZ OCHOA (A.). **Conceptos actuales sobre sensibilización cutánea a la histoplasmina.** [Up-to-date concepts of cutaneous sensitization to histoplasmin.]—*Gaz. Méd. Méx.*, 79, 1, pp. 65-76, 1949.

The information accumulated to date with regard to cutaneous sensitization to histoplasmin (*Histoplasma capsulatum* antigen) is surveyed in the light of 31 contributions to the literature on the subject. Among the inhabitants of Yucatán, Mexico, the author and collaborators (*Rev. Inst. Salubr. Enferm. trop.*, 9, p. 55, 1948) detected 55.5 per cent. positive reactors. In a forthcoming paper Glusker and collaborators report that tests on 1,672 conscripts from different States of the Republic gave the following results: City of Mexico 3.4 per cent., Guanajuato 9.8, Yucatán 24, and Veracruz 29.5. A personal communication from Tovar and collaborators (based on a paper to be published in *Rev. Hosp. Gen. Méx.*) gives the percentage of positive reactors among 1,500 hospital patients as 18.6, compared with 46.4 and 36.2 for the inhabitants of San Andrés Chamula and Amatenango del Valle, respectively. [A commentary on this paper by S. Iturbide Alvirez appears on pp. 77-82.]

1906. SCHEFF (G. J.) & PFEIFER-SCHEFF (IRENE M.). **The cellular and immunological reactions in Rabbits infected with *Histoplasma capsulatum*.**—*Amer. Rev. Tuberc.*, 62, 4, pp. 374-389, 3 graphs, 1950.

Rabbits inoculated with the mycelial phase of *Histoplasma capsulatum* developed a generalized, chronic infection, while in those inoculated with the yeast form the symptoms were more severe and acute. In both cases a transitory stimulation of the monocytic cell series followed in either the blood or the omentum and peritoneal fluid, depending on the site of injection. The presence of the yeast organisms could be demonstrated in the animals dying naturally in the course of infection.

In the rabbits with generalized infection, apparently permanent skin sensitivity developed within 10 to 78 days. The complement-fixation test also became positive in those animals and remained so in the surviving two out of five until the termination of the experiment 206 days after inoculation.

1907. BRANDT (F. A.). **Experimental histoplasmosis and X-rays.**—*S. Afr. J. med. Sci.*, 15, 1-2, pp. 1-4, 1 pl., 1950.

Histoplasmosis (*Histoplasma capsulatum*) is rare in South Africa, only three cases having been diagnosed at the South African Institute for Medical Research, Johannesburg, since the one reported by Simson and Barnetson in 1942 [No. 6]. In subcutaneous inoculation experiments on laboratory animals [No. 1927] with an indigenous strain isolated from a fatal case only transient lesions were produced, but a widespread dissemination of the disease resulted from the irradiation with 800r units of X-rays, a few hours prior to intra-peritoneal inoculation, of white mice, gerbils, striped-backed field mice, and guinea-pigs. The irradiation of a local lesion of histoplasmosis temporarily exacerbated the symptoms.

1908. PARRILLO (O. J.). **Disseminated mycotic disease. Report of three cases.**—*J. Amer. med. Ass.*, 144, 9, pp. 747-749, 5 figs., 1950.

Three fatal cases of disseminated mycotic disease, involving nearly all the internal organs and the central nervous system, are reported from the United States Veterans Administration Hospital, Lincoln, Nebraska. In two of the cases (histoplasmosis due to *Histoplasma capsulatum* and moniliasis caused by *Candida albicans*) the pathogens were identified from biopsy specimens, while in the third (torulosis, *Cryptococcus neoformans*) the agent was only recognized at autopsy. All the lesions were grossly granulomatous and histological examination disclosed variable inflammatory reaction, often accompanied by a tendency to central necrosis, liquefaction, and abscess formation in the larger granulomata.

1909. SCHULZ (D. M.). **A partially healed primary lesion in a case of generalized histoplasmosis.**—*Arch. Path.*, 50, 4, pp. 457-463, 2 figs., 1950.

A fatal case of disseminated histoplasmosis (*Histoplasma capsulatum*) in a six-month-old male infant is reported from the St. Louis (Missouri) Children's Hospital. The most remarkable feature was the partially calcified caseous nodules found at autopsy in a lung and a tracheobronchial lymph node, analogous to the primary complex of tuberculosis. The fungus was also isolated from the heart's blood, the spleen, and an adrenal gland.

1910. MIDDLETON (J. G.), MCVICKAR (D. L.), & PETERSON (J. C.). **Experimental histoplasmosis in the White Rat.**—*Proc. Soc. exp. Biol., N.Y.*, 75, 1, pp. 164-166, 1 graph, 1950.

At the Vanderbilt University School of Medicine, Nashville, Tennessee, the yeast cell phase of *Histoplasma capsulatum*, injected intravenously in adequate numbers (up to 40,000,000 per animal), caused a consistently reproducible fatal infection in white rats. The necessity for standardizing the inoculum on the basis of the number of viable organisms, rather than on the total number, is emphasized.

1911. FURCOLOW (M.). **Further observations on histoplasmosis. Mycology and bacteriology.**—*Publ. Hlth Rep., Wash.*, 65, 31, pp. 965-994, 20 figs., 1950.

A full account is presented of six new cases of histoplasmosis (*Histoplasma capsulatum*) in Kansas City [No. 1416], together with additional information regarding the ten previously reported from the same area. Of the three patients still alive at the time of writing one was still ill and two had recovered. All six reacted negatively to skin tests with blastomycin and four to coccidioidin; two were not tested. Three of the six showed disseminated lesions on chest X-rays; one healed with the development of miliary calcification; in another the lesions disappeared; and in the third they persisted unchanged for two years before death from other causes.

1912. SHAW (L. W.), HOWELL (A.), & WEISS (E. S.). **Biological assay of lots of histoplasmin and the selection of a new working lot.**—*Publ. Hlth Rep., Wash.*, 65, 18, pp. 583-610, 6 graphs, 1 map, 1950.

Early in 1948 the supply of histoplasmin (*Histoplasma capsulatum* antigen, H-15) used by the Division of Tuberculosis in most of its studies on histoplasmin was nearly exhausted, and a new product was accordingly selected from four lots by means of procedures which are fully described. Three of these lots of histoplasmin were pooled under the designation of H-42, the matching dilution of which, in relation to the 1:1,000 dilution of H-15, arbitrarily called 'the standard', was 8:1,000.

The estimation of the matching dilution followed the testing of three trial dilutions. A sensitive measure of the relative potency of each trial dilution,

termed 'the critical difference', consisted of the difference of two percentages: (1) the percentage of persons whose reaction to the standard was the larger, and (2) the percentage of those whose reaction to the trial was the larger.

1913. HOWELL (A.) & KIPKIE (G. F.). **Experimental histoplasmosis. Susceptibility of male dba line 1 Mice by various routes of injection.**—*Proc. Soc. exp. Biol., N.Y.*, 75, 1, pp. 121-123, 1 graph, 1950.

Particulars are given of a series of experiments demonstrating the relative resistance of male dba line 1 mice to intravenous injection with the yeast phase of *Histoplasma capsulatum* [No. 1693]. Intraperitoneal injection of enormous numbers of the organisms suspended in saline resulted in occasional deaths, the mortality rate being increased by the substitution of 5 per cent. mucin for saline. Intracerebral injection, however, proved far superior to any of the other routes tested, both as regards the numbers of organisms necessary to produce death 30 days after injection and the percentage of mortality obtained within this period.

1914. HOWELL (A.) & KIPKIE (G. F.). **Studies on experimental histoplasmosis. IV. A comparison of the virulence of five strains of Histoplasma capsulatum by intracerebral inoculation of male dba line 1 Mice.**—*J. Lab. clin. Med.*, 36, 4, pp. 547-554, 1 graph, 1950.

The relative virulence of five strains of *Histoplasma capsulatum* was investigated in male dba line 1 mice by intracerebral injection [see preceding entry]. On the basis of the percentage of animals dying spontaneously within 30 days of the operation, the time at which death occurred, and the extent and nature of the lesions observed, it is concluded that the five strains differed markedly in pathogenicity. Particularly virulent was 156, isolated from the tonsils of a person suffering from an apparently benign form of histoplasmosis. Such differences would seem to necessitate preliminary studies on the virulence of a given strain in order to provide a common basis of reference in subsequent experiments and for comparison with the results of other workers.

1915. HOWELL (A.) & KIPKIE (G. F.). **A comparison of the susceptibility by intracerebral inoculation of six strains of Mice with male dba line 1 Mice.**—*Amer. J. clin. Path.*, 31, 1, pp. 33-41, 1951.

In a series of five experiments the susceptibility of six strains of mice to intracerebral injection with a specified strain of *Histoplasma capsulatum* was compared with that of male dba line 1 mice [see preceding entries]. Apparently male mice of the C3H strain and one strain of Swiss albino, four to five weeks old, are equally susceptible with male dba line 1 mice of comparable age. The other strains of mice tested may be graded in the following order of decreasing susceptibility to the pathogen: (a) Bar Harbor C57 Black Line 6, (b) Swiss Albino, Rockefeller General Purpose strain (inbred), (c) strain 'A' (Strong A), (d) Bar Harbor C57 Black Line 10, and (e) Swiss Albino, random-bred.

1916. KIPKIE (G. F.) & HOWELL (A.). **Histopathology of experimental histoplasmosis.**—*Arch. Path.*, 51, 3, pp. 312-318, 2 figs., 1951.

Histological studies were carried out at the Duke University School of Medicine, Durham, North Carolina, on a total of 491 dba line 1, BHC57B10, and BHC57B6 male and female mice following intracerebral, intravenous, and intraperitoneal injection of various strains of *Histoplasma capsulatum* [see preceding entries]. The Goldman iron alum-picric acid-haematoxylin stain (*J. Parasitol.*, Suppl., 6, 35, p. 90, 1949) proved particularly useful in the demonstration of the organisms in the tissues.

1917. SLIM VILLEGAS (V. J.) & ARANDA REYES (B.). Breve informe sobre las pruebas alérgicas a la coccidioidina e histoplasmina en el Valle de Mexicali, Baja California. [Brief report on coccidioidin and histoplasmin allergy tests in the Mexicali Valley, Lower California.]—*Bol. Ofic. Sanit. panamer.*, 30, 1, pp. 16-25, 4 figs., 1951. [English summary.]

From 1st July, 1949, to 1st March, 1950, 2,945 tests were performed with coccidioidin [*Coccidioides immitis* antigen] in the Mexicali Valley, Lower California, Mexico, with 686 positive, 2,103 negative, and 156 unknown results. Of the positive reactors, 32·3 per cent. were male and 32·8 per cent. female. A significantly high percentage of positive responses was elicited in the 1- to 14-year age groups; from 40 years upwards there was a slight decrease.

During the same period 2,304 tests were carried out with histoplasmin [*Histoplasma capsulatum* antigen: No. 1900 and next entries] with 523 positive, 1,642 negative, and 139 unknown results. The preponderance of female (32·2 per cent.) over male (28·6) reactors was significant. The positive percentages began to rise with the 10- to 14-year age group [cf. next entry] and reached a maximum at 60.

To a group of 162 persons the two foregoing tests and Von Pirquet's (tuberculin) were applied simultaneously with the following results: 29·6 per cent. positive to all three; 13·5 to coccidioidin and histoplasmin; 3·7 to coccidioidin and tuberculin; 11·7 to tuberculin and histoplasmin; 5·5 to coccidioidin; 27·7 to tuberculin; and 8·02 to histoplasmin.

1918. ZEIDBERG (L. D.), DILLON (ANN), & GASS (R. S.). Some factors in the epidemiology of histoplasmin sensitivity in Williamson County, Tennessee.—*Amer. J. publ. Hlth*, 41, 1, pp. 80-89, 4 graphs, 1951.

Between August, 1945, and July, 1950, 5,044 persons of all age groups were tested with histoplasmin (*Histoplasma capsulatum* antigen) [see preceding and next entries] in Williamson County, Tennessee. Positive reactions occurred in 25 per cent. of those under one year old, rose steeply to a peak of 87 per cent. between 10 and 14 [cf. preceding entry], and declined after the age of 15. There was no significant difference between males and females in the percentage of positive reactors at any age or *in toto*, but coloured persons showed a lower proportion than white, especially in the under-five age group. Of 506 individuals, positive at the first test, who were re-tested at an average interval of 25 months, 15·8 per cent. had reverted to negative.

In a study of seasonal variation in allergy among children under five, histoplasmin sensitivity appeared to be at its lowest level in the winter and early spring, rising during the summer to a peak in the autumn. An association between positive reaction and dampness of the environment was revealed by an investigation of 271 homes.

1919. KESSEL (J. F.), BIDDLE (MARJORIE), TUCKER (H. A.), & YEAMAN (ANTOINETTE). The distribution of coccidioidomycosis in southern California.—*Calif. Med.*, 73, 4, pp. 317-321, 1 diag., 1 map, 1950.

In coccidioidin (*Coccidioides immitis* antigen) skin test surveys among 1,058 persons of high-school age in the Saugus, Canoga Park, Banning, and Palm Springs areas of southern California [cf. No. 1282], the average incidence of positive reaction was 15 per cent. Histoplasmin (*Histoplasma capsulatum* antigen) tests were also performed on 984 of the above-mentioned individuals, resulting in an over-all incidence of 7·6 per cent. positive reactors, most of whom had previously lived in some area of the central United States where histoplasmosis is endemic [cf. preceding entry].

1920. Raftery (A.), Trafas (P. C.), & McClure (R. D.). **Histoplasmosis. A common cause of appendicitis and mesenteric adenitis.**—*Ann. Surg.*, 132, 4, pp. 720-728, 5 figs., 1950.

A study of surgical specimens from 2,135 cases of appendicitis and mesenteric adenitis covering a ten-year period at the Henry Ford Hospital, Detroit, Michigan, revealed a 5 per cent. incidence of histoplasmosis (*Histoplasma capsulatum*) [cf. next entry] in acute and chronic appendicitis and 43 per cent. in mesenteric adenitis. The fungus was demonstrated morphologically, culturally, and by duplication of the disease in mice. A review of the clinical histories of 90 cases disclosed a picture of low-grade chronic disease. Four case reports are presented and discussed.

1921. Raftery (A.) & Hartman (F. W.). **Adjuncts to mycologic diagnosis.**—*Amer. J. clin. Path.*, 21, 2, pp. 133-138, 7 figs., 1951.

In the course of recent studies of chronic histoplasmosis (*Histoplasma capsulatum*) [cf. preceding entry], several adjuncts to current cultural methods were developed. Nitrogen mustard, methyl bis (β -chloroethyl) amine hydrochloride, exerts powerful bactericidal properties in concentrations of 1,000 and 1,500 mg. per l. culture medium without adverse effects on *H. capsulatum*, *Candida albicans*, *Aspergillus niger*, *Actinomyces bovis*, and *Nocardia asteroides*. With the aid of this compound a cultural study could be made of grossly contaminated material.

The chick embryo [No. 1822] acted as a selective stimulant to the growth of *H. capsulatum*, common contaminants failing to develop in the yolk sac.

Intraperitoneal inoculation of white mice produced a characteristic pathological picture identical with that of chronic human histoplasmosis.

Some of the ultrastructure of *H. capsulatum* was revealed by electron microscopy.

1922. Raftery (A.). **Gastrointestinal histoplasmosis of children.**—*J. Amer. med. Ass.*, 145, 4, pp. 216-219, 4 figs., 1 graph, 1951.

Organisms morphologically resembling *Histoplasma capsulatum* were detected in 54 out of 436 appendices surgically removed from children up to 16 years of age over a 10-year period at the Henry Ford Hospital, Detroit, Michigan, while in a recent case the fungus was cultured from the appendix. Most of the patients thus infected were suffering from an undiagnosed chronic disease. An unexplained high incidence of lymphoblastoma was found to be associated with the infection. The observations are considered to afford additional evidence in support of common benign histoplasmosis of children [Nos. 1399, 1684] as a clinical entity.

1923. Tucker (H. A.). **Histoplasmin, tuberculin and coccidioidin sensitivity on the Isthmus of Panama : preliminary report of 500 patients.**—*Amer. J. trop. Med.*, 30, 6, pp. 865-870, 1 graph, 1950.

Of 500 patients tested intradermally with the antigens histoplasmin (*Histoplasma capsulatum* antigen), tuberculin, and coccidioidin [*Coccidioides immitis* antigen] at the Colon Hospital, Cristobal, Panama Canal Zone, 190 (38 per cent.) reacted positively to histoplasmin (1 : 100), 302 (60·4 per cent.), of whom 142 were also histoplasmin-positive, to tuberculin (0·0005 mg.), and two to coccidioidin (1 : 100).

Histoplasmin sensitivity did not appear to be influenced by sex, race, or geographical background, but age was a significant factor, cumulative curves starting at zero (newborn infants) and rising sharply during the second, third, and fourth decades, with gradual levelling-off thereafter [cf. No. 1918].

There is an obvious discrepancy between the finding that 38 per cent. of the

patients reacted positively to histoplasmin and the absence of any proved case of histoplasmosis on the Isthmus since 1906. Further studies are in progress to determine whether the high incidence of sensitivity to the antigen of *H. capsulatum* is attributable to cross-reactions in patients who have been infected by antigenically related fungi, such as *Candida albicans* and *Blastomyces dermatitidis* (not infrequent in the Canal Zone), to direct exposure to *H. capsulatum*, or to the joint operation of both factors.

1924. SCOTT (V.). **Histoplasmin, coccidioidin and tuberculin sensitivity in Honduras.**—*Amer. J. trop. Med.*, 31, 1, pp. 27-32, 1951.

Of 421 patients in a general hospital at Tela, on the north coast of Honduras, 201 (47.7 per cent.) reacted positively to the histoplasmin (*Histoplasma capsulatum* antigen) skin test, 22 (5.2) doubtfully, and 198 (47.1) negatively. The corresponding figures for coccidioidin (*Coccidioides immitis* antigen) were 4 (1 per cent.), 9 (2.1), and 408 (96.9) [No. 1890]. Of 360 patients tested with tuberculin, 322 (89.5 per cent.) gave positive reactions, 8 (2.2) doubtful, and 30 (8.3) negative. Pulmonary calcifications were present in 84 (59.2 per cent.) of 142 selected patients, of whom 45.2 per cent. were tuberculin-positive and histoplasmin-negative; 42.9 per cent. positive to both tuberculin and histoplasmin; 8.3 per cent. tuberculin-negative and histoplasmin-positive; and 3.6 per cent. negative to both. These results suggest that, in addition to the high prevalence of tuberculosis in this area, infection with *H. capsulatum* is common, whereas the incidence of *C. immitis* is low.

1925. DOWDING (ELEANOR S.). ***Histoplasma* and Brazilian *Blastomyces*.**—*Mycologia*, 42, 5, pp. 668-679, 5 figs., 1 map, 1950.

A discussion and interpretation of the results of a recent study of *Histoplasma capsulatum* are given, followed by a description of *Blastomyces brasiliensis*. A comparative study of the saprophytic phases of these two organisms has been made, particularly as regards external budding.

1926. HODGSON (C. H.), WEED (L. A.), & CLEAGETT (O. T.). **Pulmonary histoplasmosis. Summary of data on reported cases and a report on two patients treated by lobectomy.**—*J. Amer. med. Ass.*, 145, 11, pp. 806-810, 3 figs., 1951.

Following a brief survey of the literature on pulmonary histoplasmosis (*Histoplasma capsulatum*) up to 1st January, 1950, the authors report two cases of the disease, one in a 36-year-old male and the other in a 34-year-old female, both successfully treated by lobectomy at the Mayo Clinic, Rochester, Minnesota.

1927. BRANDT (F. A.). **Early tissue reactions to a South African strain of *Histoplasma capsulatum* in laboratory animals.**—*J. Path. Bact.*, 62, 2, pp. 259-269, 4 pl., 1950.

A South African strain of *Histoplasma capsulatum* [Nos. 6, 1907] did not induce systemic histoplasmosis in normal guinea-pigs, gerbils (*Tatera brantsii*), white mice, or a domestic cat experimentally inoculated at the South African Institute for Medical Research, Johannesburg. Subcutaneous inoculation of the yeast form into guinea-pigs is promptly followed by a local acute inflammatory reaction, during which the yeasts are mainly extracellular. After three or four days the response becomes predominantly histiocytic and the yeast forms are intracellular. Healing begins after about a fortnight. Similar reactions are evoked by the subcutaneous injection of the filamentous form of the fungus, which is converted into the yeast form in the tissues within a few days. Suspensions containing all forms of the pathogen also cause reticulo-endotheliosis with a central area of acute inflammation, many giant cells being present. Many of the chlamydospores in suspensions degenerate after injection, but a

few undergo changes in nuclear material leading to the formation of yeasts, which are liberated into the tissues by rupture of the chlamydospore wall.

In preliminary experiments systemic histoplasmosis was induced in white mice, gerbils, striped mice (*Rhabdomys pumilio*), and guinea-pigs subjected to X-ray treatment prior to intraperitoneal inoculation with *H. capsulatum*.

1928. SALVIN (S. B.). **Growth of the yeastlike phase of *Histoplasma capsulatum* in a fluid medium.**—*J. Bact.*, 59, 2, pp. 312-313, 1950.

The yeast-like phase of *Histoplasma capsulatum* was grown in a medium containing 'casamino acids' (difco) 10 gm., glucose 3 gm., sodium chloride 2.5 gm., potassium chloride 2.5 gm., disodium phosphate 2.5 gm., and biotin 20 µgm. per l., adjusted to pH 7 and dispensed in 1 l. Blake bottles, 50 ml. per bottle. Rapid, extensive growth of the yeast-like phase, to the exclusion of the mycelium, occurred when the surface area of the culture fluid was large and its depth small. Consistently best growth was obtained with a mixture of amino acids, but it was also excellent in media with a peptone as the nitrogen source. When the culture fluid was constantly rotated, flasks with less surface area produced abundant growth. This method was used to obtain large numbers of the yeast-like cells of *Blastomyces dermatitidis*.

1929. DILLER (IRENE C.) & FISHER (MARY). **Isolation of fungi from transplanted, chemically induced and spontaneous tumours. I. General considerations.**—*Cancer Res.*, 10, 10, pp. 595-603, 10 figs., 1950.

At the Lankenau Institute for Cancer Research, Philadelphia, Pennsylvania, the microscopic study of smear preparations of tumour tissue, prepared by various cytological methods, revealed the presence of inter- and intracellular fungal structures. Spores and developing conidia may easily be mistaken, in preparations made by routine histological techniques, for lymphocytes and other blood cells. Among the organisms isolated, e.g., from human neoplasms and mouse leukaemias, were species of *Syncephalastrum*, *Alternaria*, and *Aspergillus*. In mice a second form of fungus, apparently specific for the host strain, was frequently encountered.

1930. DILLER (IRENE C.). **Isolation of fungi from transplanted, chemically-induced and spontaneous tumours. II. Cultural and microscopic observations, with particular reference to sarcoma 37 and mammary carcinoma of Mice.**—*Growth*, 14, 2, pp. 167-185, 23 figs., 1950.

The cultural characters and appearance of certain fungi isolated from mouse tumours [see preceding entry] are described. Freshly isolated from tumour tissue, a species of *Alternaria* and *Syncephalastrum racemosum* proved to be highly pathogenic to mice re-injected with spore suspensions either intraperitoneally or intramuscularly. The effects apparently become attenuated during subculture, and after several transfers through slant cultures on Sabouraud's agar the injection of the fungi caused no deaths and induced new growths in mice—apparently granulomata and not true tumours.

Recent reports by other workers on the isolation of micro-organisms from tumour tissue are discussed in detail.

1931. SARPYENER (M. A.) & ARIKAN (O.). **Madura ayağı.** [Madura foot.]—*Türk Tip Cemiyeti Mecmuası*, 16, 3, pp. 133-138, 6 figs., 1950. [Abs. in *Dermatol. & Venereol. (Excerpt. med., Sect. XIII)*, 4, 12, pp. 532-533, 1950.]

Madura foot is believed to be rare in Turkey, where the case here presented was the first seen by one of the authors in 15 years. Daily local injections of 1 gm. streptomycin in 20 ml. physiological saline gave very beneficial results.

1932. ALMEIDA (F. DE), LACAZ (C. DA S.), RIBEIRO (D. O.), & DE AZEVEDO (C.). Contribution to the study of mycetomae in São Paulo, Brazil. Madura foot by 'Cephalosporium sp.'—*Rev. Brasil Biol.*, 8, 3, pp. 287–296, 9 figs., 1948. [B.A., 23, No. 19122].

The authors report the third case in the literature and the second for Brazil of Madura foot (*Cephalosporium* sp.). The hyphae and spores of the organism are described.

1933. GHOSH (I. M.), DEY (N. C.), & PANJA (D.). Madura foot (mycetoma).—*Indian med. Gaz.*, 85, 7, pp. 288–291, 4 figs., 1950.

Following an introductory summary on the history and other aspects of Madura foot or mycetoma, the authors report two cases of the disease from Bengal, where it is stated to be rare. Both patients were males, 46 and 38 years old, and the causal organism was identified (with the assistance of Dr. J. T. Duncan) as *Actinomyces madurae* [No. 674]. Conservative treatment proved unavailing in both cases.

1934. CIFERRI (R.) & REDAELLI (P.). Probabili sinonimi di *Allescheria boydii* (= *Monosporium apiospermum*). [Probable synonyms of *Allescheria boydii* (= *Monosporium apiospermum*)].—*Mycopathologia*, 5, 1, p. 120, 1950.

Thirteen fungi, including *Glenospora viridobrunnea*, Red. & Cef. 1942 are listed as probably synonymous with *Monosporium* [*Scedosporium*] *apiospermum*, the conidial state of *Allescheria boydii* [No. 1199]. The morphology of *G. viridobrunnea* and the clinical features of the type of infection caused agree with those recorded for *S. apiospermum*, almost the only difference being the brown pigmentation of the medium caused by the former, which gradually disappears. *G. viridobrunnea* would appear to be merely an aberrant strain of *S. apiospermum*.

1935. QUINLAND (W. S.) & CHENAULT (J. W.). Mycetoma pedis : Madura foot : report of a case.—*Sth. med. J.*, 43, 10, pp. 851–855, 5 figs., 1950.

A case of mycetoma pedis (the 57th in North America) in a 24-year-old negro is reported from the Veterans Administration Hospital, Tuskegee, Alabama, originating in an injury received in the course of European service 2½ years earlier. The organism isolated on Sabouraud's agar produced a white aerial mycelium in six to twelve days. The ovoid and pyriform conidia developing singly at the tips of long conidiophores and from the mycelium were suggestive of *Monosporium apiospermum* [*Allescheria boydii*: Nos. 317, 318].

1936. VILLELA (G. G.) & CURY (A.). On the pigments of *Allescheria boydii*.—*Science*, 112, 2911, 1 fig., 1 graph, pp. 430–431, 1950.

Allescheria boydii produces a pigmented culture when grown in a basal medium of known chemical composition containing biotin. This pigment appears after seven to ten days' incubation at room temperature when the amount of biotin present is over 0.0005 µg. per 10 ml. of medium. The mycelium is reddish to violet or purple and the culture filtrate golden-yellow. Pigmented cultures develop only at pH 4 to 6.8. The mycelial pigment is red at pH 1 to 2, orange at 2.2, yellow at 7.8, and violet at 10. It belongs to the group of quinone pigments.

1937. VILLELA (G. G.) & CURY (A.). Utilization of biocytin by *Allescheria boydii*.—*Arch. Biochem., N.Y.*, 29, 1, pp. 224–225, 1950.

In the course of a study at the Instituto Oswaldo Cruz, Rio de Janeiro, on the vitamin nutrition of *Allescheria boydii*, which requires only biotin for growth, biocytin, a naturally occurring biotin complex recently isolated and crystallized from yeast (*J. Amer. chem. Soc.*, 72, p. 1048, 1950), was shown to

be capable of supporting the development of the fungus. The following growth responses were obtained (in mg. dry weight of mycelium): biotin at 0·01 and 0·1 µgm. per ml., 73·7 and 97·6; biocytin at the same levels, 74·3 and 100·5; and hydrolysed biocytin, 70·6 and 96·7.

1938. MORQUER (R.) & NYSTÉRAKIS (F.). **Rôle des hétéroauxines dans la morphogénie du *Candida albicans*.** [Role of the heteroauxins in the morphogenesis of *Candida albicans*.]—*Bull. Soc. Hist. nat. Toulouse*, 83, 3–4, pp. 173–199, 2 pl., 1948.

An exhaustive study on the influence of indole-β-acetic acid on the morphogenesis of *Candida albicans* [No. 1210] is preceded by a discussion on the taxonomy of the fungus. At relatively low concentrations the growth substance appears to augment both the plasticity and permeability of the cell membranes and later of the protoplasm, resulting in the initial elongation of the cells and their extension into hyphae. This process is partially inhibited by higher dosages.

1939. LILIENTHAL (B.) & GOLDSWORTHY (N. E.). **Studies of the flora of the mouth. I. Yeast-like organisms: some morphological and physiological characters. II. Yeast-like organisms: serological properties.**—*Aust. J. exp. Biol. med. Sci.*, 28, 3, pp. 261–285, 1 fig., 1 graph, 1950.

The morphology and physiology of 166 strains of yeast-like organisms isolated from the mouth were studied at the University of Sydney in three groups according to their origin, i.e., two from white Australians and one from New Guinea natives, and some of the features observed are tabulated and discussed. The strains were classified as follows: 118 (71·1 per cent.) *Candida albicans*, 8 (4·8) *C. krusei*, 2 (1·2) *C. parakrusei*, 1 (0·6) *C. tropicalis*, and 27 (16·3) as unidentified yeasts. There were also five doubtful strains of *C. albicans*, two of *C. tropicalis*, and one of *C. stellatoidea*.

A technique is described for the observation of agglutination in *C. spp.* and yeasts. It is an adaptation of the modification by Burnet *et al.* (*Med. J. Aust.*, 1942 (ii), p. 372, 1942) of Hirst's haemagglutination test for influenza virus (*Science*, 94, p. 22, 1941). No morphological, physiological, or serological differences could be detected between the Sydney and New Guinea strains of *C. albicans*. Both strains of *C. krusei* and 11 out of 14 yeast strains yielded auto-agglutinated suspensions, as compared with only 12 out of 78 of *C. albicans*.

From these admittedly meagre data it is concluded that ordinary serological methods do not show clear-cut differentiation between *C. albicans* and *C. krusei*, but that some distinction is possible by these means between yeasts on the one hand and *C. spp.* on the other.

1940. LILIENTHAL (B.). **Studies on the flora of the mouth. III. Yeast-like organisms: some observations on their incidence in the mouth. IV. Some observations on acid production by lactobacilli and *Candida albicans*: a preliminary report.**—*Aust. J. exp. Biol. med. Sci.*, 28, 3, pp. 279–290, 1950.

'Yeasts', consisting mainly of species of *Candida*, were detected in the saliva of (a) children both free from dental caries and with (b) a high incidence of the complaint, (c) three groups of students, (d) natives of New Guinea with a low incidence of caries, and (e) boys at Boys' Town. They were also isolated from carious lesions and from tooth surfaces (mucinous plaques). No relationship was established between dental caries and *C. albicans*. The yeast and *Lactobacillus acidophilus* occur together in the mouth and their association is strictly significant.

Studies of the lactic acid production by strongly and weakly acidogenic

strains of *L. acidophilus* and *C. albicans*, singly and in combination, revealed synergistic effects which are tentatively attributed to the operation of a soluble compound, e.g., growth factor, amino acid, or similar nutrient.

1941. HONORATO (A.). **Interpretación del hallazgo de hongos levuriformes (Monilia) en la expectoración.** [Interpretation of the detection of yeast-like fungi (*Moniliae*) in the sputum.]—*Rev. méd. Valparaíso*, 1, 3, pp. 104-107, 1948.

The strains of *Candida* isolated from the sputa of 20 persons (hospital and private patients) at Valparaíso, Chile, were assigned to five species as follows: *C. albicans* 13, *C. krusei* 4, and *C. tropicalis*, *C. guilliermondi*, and *C. parakrusei* one each. Two of the strains of *C. albicans* were implicated in the etiology of pulmonary mycosis, one was associated with aspergillosis, and the remainder of the isolates were either saprophytic or potentially pathogenic in conjunction with other diseases. Attention is drawn to the increase in the population of *Candida* in the respiratory system accompanying the administration of penicillin.

1942. WOODS (J. W.), MANNING (I. H.), & PATTERSON (C. N.). **Monilial infections complicating the therapeutic use of antibiotics.**—*J. Amer. med. Ass.*, 145, 4, pp. 207-211, 2 figs., 1951.

From the Watts and McPherson Hospitals, Durham, North Carolina, the authors report 25 cases of clinical moniliasis (*Candida albicans*) following the therapeutic administration of penicillin [see preceding entry], aureomycin, and chloramphenicol. Suppression of the bacterial flora co-existing with the fungus and competing for nutrition in the same substratum is presumed to be the cause of overgrowth by *C. albicans* and host infection. Parenteral injections of vitamin B complex appear to be of some value in the prevention and treatment of this complication.

1943. LAPIERE (S.). **Un cas sérieux de moniliase des muqueuses chez un enfant de 7 ans.** [A serious case of moniliasis of the mucous membranes in a seven-year-old child.]—*Arch. belg. Derm. Syph.*, 6, 3, pp. 220-225, 1 fig., 1950.

A case of acute bucco-pharyngeal moniliasis (*Candida albicans*) in a seven-year-old boy is reported from the Dermatological Clinic of the University of Liège, Belgium. The lesions involved the glottis and lips up to the skin margin and their development was accompanied by general symptoms. The administration of potassium iodide and topical applications of 2 per cent. tyrothricin [Nos. 1784, 1796] resulted in a cure.

1944. DUHIG (J. V.) & MEAD (MARGARET). **Systemic mycosis due to Monilia.**—*Med. J. Aust.*, 38 (i), 5, pp. 179-182, 1951.

Four fatal cases of systemic mycosis with visceral involvement due to *Candida albicans* in male infants (5 to 14 months) are reported from the Brisbane Children's Hospital. All the patients were of low vitality and suffering from enterocolitis. Oral and oesophageal thrush was present in one case only. The intravenous route was strongly suggested as the channel of entry.

1945. ABRAMS (W. W.). **Pulmonary moniliasis.**—*J. Kans. med. Soc.*, 51, 12, pp. 562-564, 2 figs., 1950.

A review of some contributions to the literature on pulmonary moniliasis is followed by a report of a case of lung infection caused by *Candida albicans* in a 74-year-old male patient at the Providence Hospital, Kansas City, the purpose being to show the close resemblance of the disease to pulmonary tuberculosis and other conditions. Of special importance in making a diagnosis are: (1) completeness of sputum examinations for fungi as well as for other organisms, and (2) repeated X-ray reports of probable tuberculosis lesions

with minimal physical findings, which should be a warning signal for closer attention to differential diagnosis.

1946. CATANEI (A.). **Sur des champignons lèvuriformes isolés chez l'Homme, en Algérie.** [On the yeast-like fungi isolated from Man in Algeria.]—*Arch. Inst. Pasteur Algér.*, 28, 3, pp. 376-382, 1950.

Since 1923 the following yeast-like fungi have been isolated from man in Algeria: *Candida tropicalis* (in one case associated with a *Cryptococcus*), *Candida albicans*, and *C. krusei* from the buccal cavity and pharynx; *C. pseudotropicalis*, *C. tropicalis* (associated in one case with a *Torulopsis*), *Candida albicans*, and *C. parakrusei* from sputa; *C. tropicalis* and *C. parakrusei* from pus; *C. parakrusei* in association with a saprophytic fungus close to *Acremoniella olivaespore* from the squamae of pityriasis versicolor and *C. tropicalis* from the interdigital spaces of the feet; and *C. flameri* and a *Candida* of the *brumpti* type from the scalp.

1947. CRAPS (M.), LAMBELIN (E.), & VANBREUSEGHEM (R.). **Moniliase généralisée à Candida albicans.** [Generalized moniliasis caused by *Candida albicans*.]—*Arch. Derm. Syph., Bruxelles*, 6, 1, pp. 1-24, 5 figs., 1950.

An account is given of a Belgian case of generalized moniliasis due to *Candida albicans* in a girl aged nine. The child had shown a rash two days after birth, the condition grew steadily worse, and the fungus was found present at the age of 21 months. Treatment during the past five months has consisted in the use of potassium iodide (4.5 gm. daily) and vaccines prepared from cultures of the fungus. A bibliography of 52 titles is appended.

1948. RILEY (KATHLEEN) & FLOWER (A. H.). **A comparison of the inhibitory effect of Castellani's paint and of gentian violet solution on the in vitro growth of Candida albicans.**—*J. invest. Derm.*, 15, 5, pp. 355-361, 2 figs., 1950.

A comparative *in vitro* study of the inhibitory activity of gentian violet solution, Castellani's compound solution of carbolfuchsin, and its individual ingredients on a virulent strain of *Candida albicans* was carried out at the Duke University School of Medicine, Durham, North Carolina. Gentian violet solution will inhibit the growth of the fungus in a dilution of 1 in 1,000,000, as against 1 in 100 for Castellani's solution. The most active ingredient in the latter is the alcoholic solution of basic fuchsin (1 in 100), followed by a 5 per cent. aqueous solution of phenol (1 in 50). It is presumed that other factors, such as drying and keratolytic effect, must play a large part in the therapeutic action of Castellani's carbolfuchsin solution on intertriginous moniliasis. Gentian violet solution has proved effective in the treatment of this condition in the authors' experience.

1949. GAUSEWITZ (P. L.), JONES (F. S.), & WORLEY (G.). **Fatal generalized moniliasis. Report of a case.**—*Amer. J. clin. Path.*, 21, 1, pp. 41-49, 9 figs., 1951.

An unusual case of infection by *Candida albicans* resulting in a chronic fatal illness in a 10-year-old boy is reported from the Wisconsin General Hospital, Madison. Multiple involvement of the viscera by the fungus was demonstrated histologically and bacteriologically. The factors of potential significance in the development of the disease are discussed.

1950. FLORENZANO (G.) & ZINI (F.). **Osservazioni sperimentalì sull' etiologia di una blastomicosi pulmonare granulomatosa.** [Experimental observations on the etiology of a granulomatous pulmonary blastomycosis.]—*Accad. med.-fis. Fiorent.*, Meeting of 9th June, 1949, 20 pp., 6 figs., 1950.

From the sputum of a female patient aged 48, residing at Florence and suffering from granulomatose pulmonary blastomycosis (which terminated

fatally), the authors isolated *Candida albicans* and a strain resembling *C. albicans* var. *stellatoidea* [*C. stellatoidea*]. Intravenous and intraperitoneal inoculations of guinea-pigs with a suspension of both strains together proved fatal.

1951. WEEKES (CLAIRE). **Iodine treatment of monilial infection of the vagina.**—*Med. J. Aust.*, 34, 21, pp. 636-638, 1947. [B.A., 24, No. 19874.]

Liquor iodi mitis, used twice a week, has proved the most rapid and successful method of treating monilial infection of the vagina so far tested at the Rachel Foster Hospital, Redfern, Sydney. Of 50 patients treated, 38 were cured after one to nine paintings; of the 12 not cured, six had conditions complicated by other factors.

1952. CASSAMAGNAGHI (A.). **Tuberculosis en Palomas coexistiendo con una blastomieosis del aparato digestivo.** [Tuberculosis in Pigeons co-existing with a blastomycosis of the digestive tract.]—*Rev. Med. vet., Montevideo*, 24, 47-48, pp. 925-928, 3 figs., 1949.

Mycotorula [*Candida*] *albicans* was isolated from lesions in the upper digestive tract of pigeons in a Uruguayan aviary in 1949. Out of 70 birds 25 died in just over a year. The blastomycosis was co-existent with tuberculosis.

1953. BUXTON (A.), DARCEL (C. LE Q.), GORDON (R. F.), & HORTON SMITH (C.). **Suspected moniliasis in Turkeys.**—*Vet. Rec.*, 61, 50, pp. 828-829, 1 fig., 1949.

A fungus believed to be identical with *Candida albicans* was isolated on Sabouraud's agar from necrotic, proliferating lesions in the crops of turkey poult [cf. next entry] on a Norfolk farm in the autumn of 1949.

1954. AINSWORTH (G. C.). **Fungus diseases of animals.**—*Nature*, 166, p. 547, 1950.

At a meeting of the British Mycological Society held at the University of Reading on 26th July, 1950, Mr. J. D. BLAXLAND (Ministry of Agriculture's Veterinary Laboratory, Weybridge) gave an account of moniliasis in turkeys, unrecorded in Great Britain until 1949, when five outbreaks, involving the death of over 8,000 of 12,000 poult were investigated. The affected birds did not usually show any diagnostic symptoms, but *Candida albicans* was isolated from crop lesions in dead poult [cf. preceding entry]. This fungus was the subject of a paper by Miss P. M. STOCKDALE (University College, Exeter), in which she described the methods employed for determining the morphological and physiological characters used to differentiate species of *Candida*. Dr. R. E. REWELL, recently pathologist to the Zoological Society of London, dealt with aspergillosis of birds and animals caused by *Aspergillus fumigatus* and other *A.* spp.

Histoplasma farciminosum was discussed by Dr. J. J. BULLEN, who studied the physiology and serology of the fungus at the Institute for Animal Pathology, Cambridge. The parasitic activity of *H. farciminosum* [No. 1700] is probably confined to equines, and in this respect it differs from *H. capsulatum*, an example cited by Dr. J. T. DUNCAN in a review of the relation of mycoses of animals to disease in man. Actinomycetes were also discussed.

1955. SUNDGAARD (G.), THJØTTA (T.), & URDAL (K.). **Familær opptreden van geotrichosis pulmonum.** [Occurrence of geotrichosis pulmonum in a family.]—Reprinted from *Nord. Med.*, 43, 10 pp., 6 figs., 1950. [English summary.]

A species of *Geotrichum* was isolated from the sputum of eight out of eleven members of a peasant family in Norway, three of whom presented clinical and roentgenological symptoms of pulmonary disease. Tuberculin tests gave negative results. Three cases are briefly described and a concise review is given of the symptomatology, mycology, and diagnosis of pulmonary geotrichosis.

1956. MURPHY (J. D.) & BORNSTEIN (S.). **Mucor-mycosis of the lung.**—*Ann. intern. Med.*, 33, 2, pp. 442-453, 9 figs., 1950.

A case of pulmonary mucormycosis in a 40-year-old farmer is reported from the Veterans Administration Hospital, Oteen, North Carolina. The fungus, isolated from a calcified tumour (which was successfully excised) in the posterior portion of the left upper lobe, was tentatively identified by Dr. C. W. Dodge as *Absidia italiana*. It was pathogenic to rabbits.

1957. WOLF (A.) & COWEN (D.). **Mucormycosis of the central nervous system.**—*J. Neuropath. exp. Neurol.*, 8, 1, p. 107, 1949.

A case of mucormycosis [Nos. 1295, 1956] of the central nervous system (identified on a histological basis only) associated with diabetes of 15 years' standing in a 42-year-old negro is reported from New York. At autopsy the mould was detected in the wall of the thrombosed left cavernous sinus and had secondarily invaded the leptomeninges. A wave of severe necrotizing encephalitis spread from the orbital surfaces of the frontal lobes into the central white matter. This is stated to be only the sixth case of neural mucormycosis on record.

1958. SCHMIDT (S.) & STAMPFL (B.). **Tumorartige generalisierte Mykose in verschiedenen inneren Organen.** [Tumour-like generalized mycosis in various internal organs.]—*Dtsch. med. Wschr.*, 75, 43, pp. 1433-1434, 3 figs., 1950.

The fungus isolated from multiple granulomatous tumours in various internal organs of a 45-year-old female patient who succumbed to metastasizing mycosis in a Munich hospital was referred by the authors to *Saccharomyces hominis* [*Cryptococcus neoformans*]. However, Professor Zobl diagnosed the organism (*in litt.*) as *Mucor corymbifera* (*Absidia lichtheimi*) [No. 155].

1959. ALVAREZ SAINZ DE AJA (E.). **Del tratamiento de las onicopatías y onicomicosis en general.** [On the treatment of onychopathies and onychomycoses in general.]—*Act. dermo-sif.*, Madr., 42, 2, pp. 138-141, 1950.

Recent developments in the therapy of onychomycoses are discussed in the light of the author's experience at the Hospital of San Juan de Dios, Madrid.

1960. FRANKS (A. G.) & STERNBERG (A.). **Treatment of onychomycosis with ammoniacal silver nitrate solution.**—*Arch. Derm. Syph.*, Chicago, 62, 2, pp. 287-289, 1950.

With the technical assistance of Frances Karpluk, the authors sought to confirm the satisfactory results obtained by Nickerson and White in the therapy of chronic refractory onychomycosis due to *Trichophyton rubrum* with ammoniacal silver nitrate [No. 1263]. The 18 patients subjected to the treatment were not materially benefited. On the other hand, five out of seven cases of nail infections caused by *Candida albicans* showed decided clinical improvement.

1961. GOTZ (H.). **Über die Behandlung der Onychomykosen mit einem neuen Nagelerweicher (Kaliumthioglykolat).** [On the treatment of onychomycoses with a new nail-softener (potassium thioglycollate).]—*Hautarzt*, Berl., 1, 8, pp. 368-371, 1950.

Following a discussion of various methods of combating onychomycoses, the incidence of which in Germany during the last decade has been remarkably high, the author describes the results of his treatment of 20 patients at the University Skin Clinic, Hamburg, with 8 per cent. potassium thioglycollate ointment plus 1 in 1,000 silver nitrate [see preceding entry]. Despite initial onycholysis, a follow-up after five to seven months disclosed relapses in 80 per cent. of the cases.

1962. WORTMANN (F.). **Dermatomykosen.** [Dermatomycoses.]—*Dermatologica*, 95, pp. 175–192, 1948.
 Recent contributions to the literature on dermatomycoses are briefly surveyed under the headings of (a) general, (b) actinomycosis, (c) epidermophytoses (foot mycoses), (d) favus, (e) microsporosis, (f) trichophytosis, (g) pityriasis versicolor, (h) blastomycoses, chromoblastomycoses, oidiomycoses, sporotrichoses, and various rarer mycoses, and (i) general therapy.

1963. WEINER (M. A.). **Simple efficient method of examining skin scrapings for fungi.**—*Arch. Derm. Syph.*, Chicago, 62, 5, pp. 709–711, 1 fig., 1950.
 A simple modification of the usual method of examining skin scrapings for the presence of fungi is described. It involves merely the substitution of a Dappen medicament glass (a heavy, usually ten-sided cup with a biconcave internal structure) for a glass slide to catch scrapings from the lesions. The concentration of scrapings per microscopic field can be easily controlled by varying the amount of potassium hydroxide added to the dish.

1964. DUCHÉ (J.) & NEU (J.). **Culture des microorganismes en milieu continu.** [Culture of micro-organisms in a continuous medium.]—*C. R. Acad. Sci. Paris*, 231, 1, pp. 83–85, 1 fig., 1950.
 The writers describe a special technique for the culture of micro-organisms involving the use of a cylindrical culture vessel of Pyrex glass with apertures at both ends, the upper one receiving the medium from a bulb connected with it by tubing and the lower one discharging the metabolic products into an Erlenmeyer flask. After two months *Trichophyton gypseum asteroides* [*T. mentagrophytes*], which in ordinary culture undergoes pleomorphism in a period of three weeks, presented a normal aspect when subcultured on the usual media. Similarly, a strain of *Penicillium lilacinum*, which had lost its violaceous pink tint, regained its normal colour in continuous culture.

1965. VALÉRIO (A.). **Disidrose e epidermofírias dos pés e mãos.** [Dyshidroses and epidermophytoses of the feet and hands.]—*Impr. med. S. Paulo*, 25, 433, pp. 47–48, 1950.
 Between 1st January, 1947, and 15th December, 1949, the author treated 281 cases of dermatomycosis in Rio de Janeiro, Brazil, 235 affecting the feet only and 46 the feet and hands. In 40 the causal organism was *Epidermophyton floccosum*, in 25 *Trichophyton rubrum*, in 20 *E. [Trichophyton] interdigitale*, in 11 *T. purpureum* [*T. rubrum*], in 10 *Microsporum achorion* [*?M. gypseum*], and in 6 *Ctenomyces* [*T.*] *pedis*. Therapy was effected by means of X-rays (10 to 15 applications) in six cases, and by local treatments with gentian-violet or salicylated collodion in the remainder.

1966. FEJÉR (E.). **A gombás eredetű dysidrosisok es ekzemák.** [Dyshidroses and eczema of fungal origin.]—*Orv. Hetil.*, 91, 13, pp. 404–410, 1950. [Abs. in *Dermatol. & Venereol. (Excerpt. med., Sect. XIII)*, 4, 11, p. 488, 1950.]
 In dyshidrosis hypersensitivity is the rule. It originates as a dermatophytid or toxinosis by sensitization to toxins from a focus of fungoid (in 65 to 70 per cent. of the cases in Hungary), bacterial, or mixed origin. Hypersensitivity of fungal origin may be demonstrated by the intradermal administration of trichophytin. The toes and soles of the feet are the usual sites of invasion, microscopic examination revealing fungi on the hands in only 10 to 15 per cent. of the cases.

1967. BORNHAUSER (S.). **Über einige relativ seltene hautpathogene Pilze.** [On some relatively uncommon skin-pathogenic fungi.]—*Dermatologica*, 101, 6, pp. 345–356, 4 figs., 1950. [English and French summaries.]
 During a period of 1½ years (July, 1947, to December, 1948), seven dermato-

phytes of comparatively rare occurrence in Switzerland were encountered at the Zürich Dermatological Clinic. They were *Trichophyton cerebriforme* [*T. flavum*], *T. faviforme album* [*T. album*], *Achorion* [*T.*] *schoenleini*, *Microsporum lanosum* [*M. canis*], *M. gypseum*, and a tropical infection acquired in India and possibly due to *Epidermophyton* [*T.*] *rubrum*.

1968. MATILLA (V.) & PEÑA YANEZ (J.). *Notas micológicas. III. Género Trichophyton.—Caracteres generales y estudio de los especies. IV. Género Trichophyton. Grupo crateriforme.* [Mycological notes. III. The genus *Trichophyton*.—General characters and study of the species. IV. Genus *Trichophyton*. Group crateriforme.]—*Med. colon., Madr.*, 15, 6, pp. 489–505; 16, 5, pp. 353–366, 1950.

The authors review the available information on the general characters, history, geographical distribution, parasitic morphology, culture, macro- and micromorphological characters, biochemical properties, pathogenic action, experimental inoculation, immunological reactions, and synonymy of three groups of *Trichophyton*, namely, *gypseum*, with the type species *T. mentagrophytes*, *rubrum* (*T. rubrum*), and *crateriforme*, comprising *T. tonsurans*, *T. epilans*, *T. sabouraudii*, and *T. sulphureum*.

1969. MATILLA (V.) & PEÑA YANEZ (J.). *Notas micológicas. Nota V. Género 'Trichophyton'. Grupo faviforme.* [Mycological notes. Note V. Genus *Trichophyton*. Faviform group.]—*Med. colon., Madr.*, 17, 3, pp. 197–220, 1951.

This is a useful review of the available information on the faviform group of the genus *Trichophyton* [see preceding entry], comprising four species, namely, *T. schoenleini*, *T. concentricum*, *T. violaceum*, and *T. ferrugineum*. Two of these species are known to occur in Spain, where the authors have isolated and identified 13 strains each of *T. schoenleini* and *T. violaceum* (*Trab. Inst. nac. Cienc. med.*, 13, p. 3, 1950).

1970. WEBSTER (J. R.). *Some aspects of tinea and parasitic skin disorders in children.*—*Med. Clin. N. Amer.*, 1950, 1, pp. 257–269, 1950.

Essential information on the etiology, diagnosis, and therapy of tinea capitis (*Microsporum* and *Trichophyton* spp.) is presented and discussed under the headings of etiology, diagnosis, and treatment.

1971. WALKER (JACQUELINE). *The dermatophytoses of Great Britain. Report of a three years' survey.*—*Brit. J. Derm. Syph.*, 62, 4, pp. 239–251, 1 map, 1950.

During the present survey of ringworm infections, covering the major part of Great Britain and Northern Ireland and extending from 1st June, 1946, to 30th September, 1949, 2,473 cultures were isolated and identified as follows: *Microsporum audouini* 1,433, *M. canis* 544, *M. gypseum* 8, *Trichophyton sulphureum* 39, *T. schoenleini* 42, *T. violaceum* 5, *T. discoides* 51, *T. mentagrophytes* 53, *T. interdigitale* 121, *T. rubrum* 97, *T. spp.* 16, *T. quinckeanum* 2, *T. equinum* 7, *T. persicolor* 4, and *Epidermophyton floccosum* 51. *M. audouini* was the principal cause of epidemic outbreaks of tinea capitis at Huddersfield, Belfast, and Henley-on-Thames.

1972. FINN (O. A.). *A review of 100 cases of ringworm of the scalp.*—*Glasgow med. J., N.S.*, 32, 1, pp. 13–15, 1951.

In a series of 100 cases of tinea capitis admitted to Stobhill Hospital, Glasgow, during the past $\frac{2}{3}$ years, cultures were obtained in 77, of which 64 (83 per cent.) were identified as *Microsporum audouini*, 7 (9) as *M. canis*, 3 (4) as *Trichophyton sulphureum*, 2 (2) as *T. schoenleini*, and 1 each (1) as *T. quinckeanum* and *T. equinum*. In the 60 cases treated by X-ray epilation defluvium commenced 15 days after the date of irradiation and hair growth was present

in 63 days. Local applications of Whitfield's and salicylanilide ointments, applied in 30 cases, required six months to effect a cure. In this series of cases, 90 per cent. recovered after an average period of four months from the date of treatment (all methods combined).

1973. BLANK (F.). **Zur Dermatophytien-Flora der Schweiz.** [On the dermatophyte flora of Switzerland.]—*Dermatologica*, 102, 2, pp. 88–91, 1951. [English and French summaries.]

At the research laboratories of J. R. Geigy AG., Basel, pathogenic fungi were isolated from material of 198 out of 275 cases of dermatomycosis from different parts of Switzerland, tinea pedis predominating with 134, of which 75 were caused by *Ctenomyces interdigitalis* [*Trichophyton interdigitale*] and 43 by *T. rubrum*. The other fungi represented in the collection [cf. next entry], were *C. granulosus* [*T. granulosum*], *C. asteroides* [*T. mentagrophytes*], *T. flavum*, *T. schoenleinii*, *Sabouraudites* [*Microsporum*] *audouini*, *S. [M.] canis*, *S. gypseus* [*M. gypseum*], *Epidermophyton floccosum*, *Candida albicans*, *C. guilliermondi*, *C. intermedia* [No. 1710], and *Scopulariopsis brevicaulis*.

1974. BLANK (F.). **Über mycotische Mischinfektionen.** [On mycotic mixed infections.]—*Dermatologica*, 102, 2, pp. 92–95, 1 fig., 1951. [English and French summaries.]

Material from 12 out of 275 Swiss cases of dermatomycosis [cf. preceding entry] yielded two different fungi: *Ctenomyces interdigitalis* [*Trichophyton interdigitale*] and *Candida guilliermondi* were associated in two cases of tinea pedis, *T. rubrum* and *C. parapsilosis* in three of tinea pedis, one case of onychomycosis, and one of these two conditions combined, *T. rubrum* and *C. intermedia* in one of onychomycosis, *T. rubrum* and *Epidermophyton floccosum* in one of tinea pedis, *T. rubrum* and *Scopulariopsis brevicaulis* in one of combined tinea pedis and onychomycosis [cf. next entry], *S. brevicaulis* and *C. guilliermondi* in one of onychomycosis, and *T. rubrum* and *E. floccosum* in one of eczema marginatum hebrae.

1975. BLANK (F.). **Simultaninfektion eines Fusses durch Scopulariopsis brevicaulis (Sacc.) Bain var. hominis Brumpt et Langeron und Ctenomyces interdigitalis (Priestley) Langeron et Milochevitch.** [Simultaneous infection of a foot by *Scopulariopsis brevicaulis* (Sacc.) Bain var. *hominis* Brumpt & Langeron and *Ctenomyces interdigitalis* (Priestley) Langeron & Milochevitch.]—*Dermatologica*, 102, 2, pp. 95–102, 9 figs., 1 graph, 1951. [English and French summaries.]

The clinical and mycological features of a joint case of tinea pedis and onychomycosis (*Ctenomyces interdigitalis*) [*Trichophyton interdigitale*] and *Scopulariopsis brevicaulis* [cf. preceding entry] are described. The conidia of the latter fungus were discernible in the original preparation from the toe-nail, so that an accidental laboratory contamination of the culture was excluded. It made good growth on cleaned calves' hoof, penetrating the keratin, and may therefore well be implicated in the etiology of onychomycosis.

1976. MACKINNON (J. E.). **Estadística sobre 1000 casos de micoses cutáneas en el Uruguay y determinación de las especies causantes.** [Statistics of 1,000 cases of cutaneous mycoses in Uruguay and determination of the species responsible.]—*An. Inst. Hig. Montevideo*, 3, pp. 83–94, 1949.

Tinea capitis was the most common complaint among the 1,000 cases of cutaneous mycosis statistically analysed in Uruguay. *Microsporum canis* was the agent in 319 of the 361 cases of the microsporous form and *M. gypseum* in two; *M. audouini* was not detected and in the remaining 40 the species was not determined. Tinea endothrix was caused by *Trichophyton violaceum* in

17 out of 35 cases and by *T. flavum*, *T. sabouraudii*, and unidentified species in 8, 7 and 3, respectively. *T. schoenleini* was isolated from 12 patients with favus and *T. mentagrophytes* from 15 with tinea ectothrix microides. *T. discoides* was the agent in the five identifiable cases out of 17 of megasporous tinea ectothrix. Among 18 cases of tinea barbae, eight were due to *T. mentagrophytes*, one each to *M. canis* and *T. rubrum*, and one definitely and seven probably to *T. discoides*.

Three forms of tinea of the smooth skin are differentiated, the most prevalent (155 out of a total of 185 cases) being erythro-squamatus lesions of the circinate herpes type, caused in 117 cases by *M. canis*, in one by *M. gypseum*, in two each by *T. flavum*, *T. violaceum*, *T. discoides*, and *Epidermophyton floccosum*, and in eight by *T. mentagrophytes*; 21 were undetermined. The form characterized by highly inflammatory, suppurating lesions was due in 11 out of 23 cases to *T. discoides*, and in three, two, and one to *T. mentagrophytes*, *T. equinum*, and *M. gypseum*, respectively. All seven cases of the third form of extremely extensive and refractory, erythro-squamatus lesions were referable to *T. rubrum*.

T. mentagrophytes was the agent in 25 out of 54 cases of tinea pedis, and *T. rubrum*, *E. floccosum*, and unidentified species in 7, 8, and 14, respectively. Of the last 22 cases observed, *T. mentagrophytes* was responsible for 15, *T. rubrum* for two, and *E. floccosum* for four, one being undetermined. The hands were involved in 14 patients, of whom seven yielded *T. mentagrophytes*, two *T. rubrum*, three (one certainly and two probably) *T. discoides*, and one *E. floccosum*. Of the 15 identifiable cases of marginate eczema, nine were due to *E. floccosum*, four to *T. mentagrophytes*, and two to *T. rubrum*. The last-named was further responsible for three out of seven cases of tinea unguium. Species of *Candida* (especially *C. albicans*) were also concerned in this disorder.

Other fungi recorded were *Piedraia hortai* (in 28 cases), *Trichosporon beigelii* (2), *Malassezia furfur* (37), *Phialophora verrucosa* (1), and *Sporotrichum schenckii* (92).

1977. VANBREUSEGHEM (R.). **Position systématique et nomenclature de l'Achorion quinckeum.** [Systematic position and nomenclature of *Achorion quinckeum*.]—*Ann. Parasit. hum. comp.*, 25, 3, pp. 188–199, 1 pl., 1 fig., 1950.

From a mouse affected by favus the author isolated a fungus agreeing exactly in its morphological and microscopic characters with that described by Bodin as *Achorion quinckeum*. In inoculation experiments it was not pathogenic to mice, while its morphological characters and the nature of the lesions produced experimentally on the hairs of guinea-pigs placed it in *Trichophyton* sensu Langeron & Milochevitch 1930.

1978. LA TOUCHE (C. J.). **An unsealed hanging-drop technique for the investigation of Microsporum in hair.**—*Brit. J. Derm. Syph.*, 63, 1, pp. 8–15, 6 figs., 1951.

A full description is given of a simple hanging drop method which has given very successful results at the Departments of Bacteriology and Dermatology, University of Leeds, in the speedy distinction between *Microsporum audouini* and *M. canis* on pieces of infected hair from patients with tinea capitis. The medium (a modification of that used by Kligman and Rebell [No. 1763]) consists of 5 gm. honey, 1 gm. peptone, 0·15 gm. agar, and 100 ml. water, adjusted to pH 5 to 5·3.

The occurrence of a large number of macroconidia at an early stage in the development of *M. canis* is generally accepted as the chief criterion for its separation from *M. audouini*, another one being the production of a yellow pigment, which is, however, sometimes absent. Some of the cultures of

M. audouini kept for varying periods after six days gave rise to a remarkable number of pectinate branches, while others produced an abundance of vesicular chlamydospores.

The material used to test this technique included hairs from 30 persons with tinea capitis in the West Riding of Yorkshire. In nine cases the causal organism was *M. audouini*, in 13 *M. canis*, while the dysgenic forms associated with the remainder are believed to be degenerate strains of *Microsporum*, which form a high proportion of the cultures obtained from local cases [No. 1971].

1979. KOTCHER (E.) & LAMB (W. F.). **Ringworm of the scalp in school children of Louisville.**—*Kentucky med. J.*, 48, 1, pp. 34–36, 1950.

The incidence of tinea capitis among Louisville school children during 1948–9 was low, amounting to less than 0·5 per cent. There was no increase in incidence between two surveys separated by a period of seven months, despite the absence of any restrictive measures on the activities of children found infected in the first. There were nine times as many cases among coloured as among white children. The complaint was most prevalent in children under 12 years of age, and 85 per cent. of the patients were boys. *Microsporum audouini* was the causal organism in 98·3 per cent. of the cases; only one specimen yielded *M. canis* in culture on Sabouraud's dextrose agar.

1980. JANKE (D.). **Experimentelle Untersuchungen über Haftfähigkeit des Mikrosporon audouini im menschlichen Haar.** [Experimental studies on the tenacity of *Microsporum audouini* in human hair.]—*Hautarzt, Berl.*, 2, 2, pp. 69–71, 4 figs., 1951.

In laboratory experiments in which human hairs from 1- to 10-year-old children and 30- to 60-year-old adults, soaked in a medium of dextrose 0·25, peptone 2·5, and human serum 250, were inoculated with *Microsporum audouini*, penetration was uniformly effected in 6 to 14 days in the former group (except in red or red-blonde hair) but not in the latter. However, when inoculation was preceded by 15 minutes' immersion of the adult hairs in a solution of absolute alcohol and double normal sulphuric acid or 50% sulphuric acid in equal parts to dissolve the hair and sheath cuticles, the presence of the fungus could be demonstrated after 8 to 12 days.

1981. ULRICH (J. A.) & FITZPATRICK (T. B.). **Reversible inhibition of growth of Microsporum audouini with neopyrithiamine.**—*Proc. Soc. exp. Biol. N.Y.*, 76, 2, pp. 346–349, 1951.

An account is given of experiments at the Mayo Clinic, Rochester, Minnesota, the results of which demonstrated the aptitude of neopyrithiamine in very low concentrations, e.g., 0·8 µgm. per ml., to inhibit the growth of *Microsporum audouini*. This effect, however, was readily reversible by the addition to the medium of thiamine, an essential factor for the growth of the fungus, at a concentration as low as 0·008 µgm. per ml.

1982. GIBLETT (E. R.) & HENRY (B. S.). **Physiological studies on the genus Microsporum.**—*J. invest. Derm.*, 14, 5, pp. 377–386, 1950.

In these studies at the University of Washington School of Medicine, Seattle, six strains of *Microsporum canis*, seven of *M. audouini*, and six of *M. gypseum* on Sabouraud's dextrose agar developed at a pH range of 4 to 10, with an optimum at 7; no growth was made at 3. The optimum temperature for all three species was from 25° to 30° C. At 38° the growth of *M. canis* was retarded and that of the other two species virtually suppressed; no development occurred at 40°. The carbon, nitrogen, amino acid, oxygen, and carbon dioxide requirements of the species are discussed in detail.

1983. LOEWENTHAL (K.). **Effect of yeast extract on *Microsporum audouini* and *Microsporum canis*.**—*Arch. Derm. Syph., Chicago*, 62, 2, pp. 265-268, 1950.

Three freshly isolated strains and three stock cultures of *Microsporum audouini* and *M. canis* were studied on dextrose-peptone agar, honey agar, and polished rice, with and without the addition of 0·5 per cent. yeast extract. Colony growth and pigment production were stimulated by the vitamin, but contrary to the reports of Hazen [No. 987] and of Benham [No. 1225], increased formation of fuseaux was not observed.

1984. BARLOW (A. J. E.), CHATTAWAY (F. W.), & WHEWELL (C. S.). **Ringworm of the scalp due to *Microsporum audouini*.**—*Brit. J. Derm. Syph.*, 62, 4, pp. 251-261, 1950.

Recent literature on the local treatment of tinea capitis (*Microsporum audouini*) is surveyed and the problems involved are discussed. In connexion with an account of an epidemic of this disease among school children at Huddersfield [No. 1971], the necessity for routine examination of school and home contacts in Wood's light is emphasized. In 169 of the 261 children (64 per cent.) given local treatment with salicylic acid, salicylanilide and phenyl mercuric nitrate, or cuprammonium hydroxide in carbowax a satisfactory response was elicited and X-ray epilation proved unnecessary. The most effective formula consisted of 10 per cent. copper hydroxide, 0·1 per cent. calsolene oil HS, and carbowax to 100 per cent. The significance of inflammatory reactions [No. 1783] and other factors in the assessment of the value of different topical treatments is discussed.

1985. BORNHAUSER (S.). **Über eine Mikrosporie-Epidemie in einem Kinderheim.** [On a microsporosis epidemic in a children's home.]—*Dermatologica*, 98, pp. 222-227, 1 map, 1949. [English and French summaries.]

An epidemic of tinea capitis (*Microsporum audouini*), originating in a children's home in central Switzerland [cf. next entry], spread widely between April and August, 1948, and ultimately involved 46 persons, including three adults. X-ray epilation was supplemented by topical applications of 3 per cent. tincture of iodine and ointment dressings with 3 per cent. pyrogallol-vaseline, the wearing of close-fitting knitted caps, and massage of the scalp (when epilation was complete) two or three times daily with 2 per cent. merphen spirit plus 1 per cent. glycerine.

1986. JAEGER (H.) & ZIMMERMANN (P.). **Sur la teigne due au *Microsporum audouini*.** [On ringworm due to *Microsporum audouini*.]—*Dermatologica*, 98, pp. 227-237, 6 figs., 1949. [German and English summaries.]

Clinical and histological studies are reported from a home at Lausanne on an outbreak of tinea capitis (*Microsporum audouini*) [cf. preceding entry] involving ten tubercular children (all boys except one) aged 7 to 12 years, who had been brought to Switzerland (nine from Germany and one from Hungary) through the agency of the Red Cross. The importance of examination in Wood's light as an aid to diagnosis and the progress of therapy is emphasized. The hyphae and spores were detected exclusively in the shaft of the hair.

1987. FELSHER (I. M.) & EIRINBERG (I.). **Large spores (macroconidia, fuseaux) of *Microsporum audouini* in vivo : report of a case.**—*Arch. Derm. Syph., Chicago*, 62, 3, pp. 431-435, 4 figs., 1950.

A case of tinea capitis in which the large spores (macroconidia or fuseaux) of *Microsporum audouini* were produced *in vivo* in the hair of a five-year-old negro child is reported from the Northwestern University Medical School, Chicago. Treatment with boric acid ointment gave satisfactory results.

1988. MILBERG (I. L.). **A new technic in photography with the use of ultra-violet rays. I. Fluorescent hairs in tinea capitis.**—*J. invest. Derm.*, 15, 2, pp. 69-70, 1 fig., 1950.

A method is described of eliminating many of the difficulties commonly encountered in taking colour photographs of fluorescent objects by means of ultra-violet rays. A photograph of the fluorescent hairs in a child with tinea capitis (*M[icrosporum] lanosum*) [*M. canis*] illustrates the use of the new technique.

1989. CULBERT (R. W.), ROBINSON (ANNA E. R.), & LERNER (M. N.). **Study in the reduction of absences from school of children with tinea capitis.**—*Amer. J. publ. Hlth*, 40, 9, pp. 1089-1095, 1 graph, 1950.

A programme of intensive classroom therapy, supplemented by home treatment, of 100 mostly negro pupils with tinea capitis (due in 91 cases to *Microsporum audouini*, in seven to *M. lanosum* [*M. canis*], and in two to *M. fulvum* [*M. gypseum*]) was established for one school year in three elementary schools at Brooklyn, New York, and the comparative absences before, during, and after the close of the classes were investigated. During the period of the classes 53 pupils were cured, and the average length of absence in the special class did not exceed that of children in the regular classes. The extent of absence, after the closing of the class, among pupils not cured during the school year was approximately the same for those subsequently cured by medical or by roentgen ray treatment.

1990. PAGE (R. M.). **Observations on keratin digestion by Microsporum gypseum.**—*Mycologica*, 42, 5, pp. 591-602, 2 figs., 1950.

As a result of detailed study at Harvard University of the growth of *Microsporum gypseum* and other dermatophytes on horn, finger-nails, wool, and human hair it is indicated that keratin is digested by the fungi, since there is almost complete disappearance of particles of horn and finger-nails and the loss of birefringence by hair.

1991. VANBREUSEGHEM (R.). **Contribution à l'étude des dermatophytes du Congo belge : le Sabouraudites (Microsporum) langeroni n. sp.** [A contribution to the study of the dermatophytes of the Belgian Congo: *Sabouraudites (Microsporum) langeroni* n. sp.]—*Ann. Parasit. hum. comp.*, 25, 5-6, pp. 509-517, 1 col. pl., 1 fig., 1950.

A description is given of a dermatophyte isolated from ringworm and cutaneous lesions of native children in the Belgian Congo which belongs to *Sabouraudites* but differs from *Microsporum audouini* in the macroscopic appearance of the cultures, the fact that it appears to be limited in its geographical distribution to Central Africa, its ability to infect glabrous skin, and its inoculability to guinea-pigs. The name *S. langeroni* n. sp. is proposed [without a Latin diagnosis] for this organism [No. 1996]. The evidence suggests that *M. audouini* is not present in Central Africa, lesions hitherto attributed to it being caused by the author's fungus.

1992. FRANKS (A. G.) & MANDEL (E. H.). **Microsporum infection of the eyelashes.**—*Arch. Derm. Syph., Chicago*, 62, 5, pp. 708-709, 1950.

A further case of the extremely rare involvement of the eyelashes by *Microsporum lanosum* [*M. canis*] is reported from New York [No. 1757]. The patient was a 10-year-old girl and infection was acquired from a kitten. Therapy with zincundesal (salundek; 25 per cent. zinc undecylenate, 5 per cent. salicylanilide, and 2 per cent. undecylenic acid in a carbowax base) elicited a prompt response.

1993. DALTON (J. E.), SLAUGHTER (J. C.), JENKINS (R. E.), PHELPS (S.), & HACKNEY (V. C.). **Microsporosis due to Microsporum fulvum.**—*J. invest. Derm.*, 15, 6, pp. 421–423, 1950.

Eight cases of microsporosis (*Microsporum fulvum*) [*M. gypseum*], of which there are few records in the United States, were recently observed in Indiana and one in north-western Kentucky. Their clinical features are analysed and the cultural characters of the causal organism described in this report from the Indianapolis General Hospital, two cases (a five-year-old boy and a 29-year-old woman) being treated in greater detail.

1994. WRONG (N. M.). **Pitfalls in the diagnosis and treatment of skin diseases in general practice.**—*Bull. Acad. Med. Toronto*, 23, 11, pp. 177–183, 1950. [Abs. in *Dermatol. & Venereol. (Excerp. med.)*, Sect. XIII, 5, 1, p. 31, 1951.]

Common problems and errors in the treatment of skin diseases are briefly reviewed, with special attention to the proper use of sulphonamides, anti-histamines, and penicillin, and the therapy of athlete's foot.

1995. WEILE (H.). **Interdigitalmykosen.** [Interdigital mycoses.]—*Z. Haut- u. GeschlKrankh.*, 10, 1, pp. 19–21, 1951.

The writer has obtained excellent results in the therapy of interdigital mycoses associated, e.g., with the refractory Kaufmann-Wolf fungus [*Epidermophyton Kaufmann-Wolf*], with the phebrocon preparations (Chemische Fabrik Merz & Co., Frankfurt-am-Main), the active ingredients of which are dioxyphenylhexane, chlormethylisopropylphenol, and benzoic acid esters. Directions for the application of the medicaments in various forms are given.

1996. VANBREUSEGHEM (R.). **Diagnose et systématique des dermatophytes. Contribution à la connaissance des teignes du Congo belge.** [Diagnosis and systematics of the dermatophytes. Contribution to the knowledge of the tineas of the Belgian Congo.]—*Ann. Soc. belge Méd. trop.*, 30, 4, pp. 865–986, 17 figs., 1 map, 1950.

This important study comprises four chapters. In the first three systems of classification are described and discussed, namely, those of Sabouraud (*Les Teignes*, Masson, Paris, 1910), Emmons [*R.A.M.*, 14, p. 101], and Langeron and Milochevitch [*ibid.*, 10, p. 242]; the last is accepted, with the addition of a new genus, *Langeronia* [without a Latin diagnosis], represented by *L. soudanensis* (syn. *Trichophyton soudanense* Joyeux 1912) [see next entry].

The second chapter deals with a new method of *in vitro* culture of dermatophytes on isolated hairs, the utility of which as an aid to diagnosis has been fully demonstrated.

The macro- and microscopic morphology of the species isolated from natives or Europeans resident in the Belgian Congo is the subject of the third chapter. The ten species determined up to the present are *Ctenomyces interdigitalis* [*Trichophyton interdigitale*], *Sabouraudites langeroni* [No. 1991], *S. duboisi* [No. 1483], *T. glabrum*, *T. violaceum*, *T. ferrugineum* and its var. *album*, *T. rodhaini* [No. 1486], *T. rubrum*, *L. soudanensis*, and *Epidermophyton floccosum*.

In the fourth chapter the mycoses caused by the several species are described, their relative importance assessed, and their geographical distribution defined. The numbers of isolations were as follows: *S. langeroni* 107, *T. ferrugineum* var. *album* 93, *T. ferrugineum* 82, *T. glabrum* 80, *T. violaceum* 28, *L. soudanensis* 24, *T. rubrum* 14, *T. interdigitale* 7, *E. floccosum* 2, and *T. rodhaini* and *S. duboisi* 1 each. There were six cases of mixed infection, of which three were microscopically determined as *T. glabrum*+*T. ferrugineum*, *T. violaceum*+*S. langeroni*, and *L. soudanensis*+*T. ferrugineum*.

1997. VANBREUSEGHEM (R.). **Étude sur le Trichophyton soudanense : sa présence au Congo belge. Création du genre Langeronia.** [A study on *Trichophyton soudanense*: its presence in the Belgian Congo. Erection of the genus *Langeronia*.]—*Ann. Parasit. hum. comp.*, 25, 5–6, pp. 493–508, 1 col. pl., 15 figs., 1950.

A study of 23 strains of *Trichophyton soudanense* from hairs of native children in different parts of the Belgian Congo showed that in culture the vegetative mycelium branched at rather short intervals and showed a marked tendency to form lateral branches which grew in a direction opposite to that of the general growth. From these primary lateral branches arose secondary ones sometimes showing the same characteristics as the primary ones. The reproductive spores were mostly arthrospores; true aleuria were few and resembled those of *Acladium*. The chlamydospores were intercalary, terminal, or lateral. These are not the characters of *Trichophyton*, *Ctenomyces*, *Sabouraudites*, or *Epidermophyton*, and the author erects for the fungus (without a Latin diagnosis) a new genus *Langeronia*, of which the fungus, *L. soudanensis* [n. gen., n. sp.], is the type (and only) species [No. 1996].

1998. VANBREUSEGHEM (R.). **Étude de 136 souches de Trichophyton ferrugineum (Ota 1921) Langeron et Milochevitch 1930, et de sa variété blanche, isolées au Congo belge.** [A study of 136 strains of *Trichophyton ferrugineum* (Ota 1921) Langeron & Milochevitch 1930, and its white variety, isolated in the Belgian Congo.]—*Ann. Parasit. hum. comp.*, 25, 5–6, pp. 485–492, 1 col. pl., 1 map, 1950.

A study is presented of 136 strains of *Trichophyton ferrugineum* isolated from native children of both sexes in different parts of the Belgian Congo, including a white variety of the fungus which the author names *T. ferrugineum* var. *album*, and to which 59 of the strains belonged.

The cultural characters were the same for *T. ferrugineum* and its var. *album*, and fell into four types: (a) waxy and cerebriform; (b) flat or with radiating folds; (c) scaly (the most frequent type); and (d) downy. Emphasis is laid on the polymorphism of the colonies.

1999. NÉKÁM (L.) & POLGÁR (P.). **L'action des vitamines et des hormones (particulièrement de la vitamine K) sur la croissance des bactéries et des champignons pathogéniques.** [The action of vitamins and hormones (particularly of vitamin K) on the growth of bacteria and pathogenic fungi.]—*Acta derm.-venereol., Stockh.*, 30, 2, pp. 200–204, 1 fig., 1950. [German and English summaries.]

The action of vitamins and hormones on fungi and bacteria may be either stimulatory or inhibitory, depending largely on their chemical structure. The repressive effect of vitamin K on the growth of bacilli and *Trichophyton* spp. is attributed to its naphthoquinone structure. Like vitamin C, vitamin K probably plays an important part in the resistance of the system to infection. Previous observations as to the fungicidal activity of the sex hormones containing the sterol radical and of the stilbene derivatives were confirmed by these experiments, which were performed at the Dermatological Clinic of the University of Budapest.

2000. SCHULZ (H. J.). **Klinische Erfahrungen mit Chlorisept bei mykotischen Erkrankungen der Haut.** [Clinical experiments with chlorisept in mycotic diseases of the skin.]—*Z. Haut- u. GeschlKrankh.*, 9, 11, pp. 470–472, 7 figs., 1950.

Between November, 1949, and May, 1950, 85 cases of mycotic skin disease of various types were successfully treated at the dermatological clinic of the Medical Academy, Giessen, Germany, with a new preparation known as chlorisept and consisting of 5–8 chloroxyquinolin with the addition of salicylic and benzoic acids. It is supplied by the firm of Riedel de Haen.

2001. GATÉ (J.), COUDERT (J.), & IEHL (H.). **Utilisation de la tyrothricine comme antifungique en dermatologie.** [Utilization of tyrothricin as an anti-fungoid in dermatology.]—*Bull. Soc. franç. Derm. Syph.*, 1949, 2, pp. 127-129, 1949.

Following laboratory experiments in which the anti-fungal properties of tyrothricin [No. 1135] were demonstrated in cultures of *Microsporum lanosum* [*M. canis*], *M. audouini*, and *Trichophyton violaceum*, and in inoculation tests on guinea-pigs, the authors applied the antibiotic to the therapy of tinea capitis in children with encouraging results. After epilation by mechanical means or X-rays, the entire scalp was washed daily with a 70 per cent. alcohol solution containing 20 per cent. acetone or 10 per cent. propylene glycol and titrated at 1 mg. tyrothricin per ml. The treatment has also been successfully applied to epidermomyceses of the glabrous skin.

2002. FRANKS (A. G.) & ROSENBAUM (E. M.). **Benign course of dermatophytosis due to combined infection with *Epidermophyton floccosum* and *Trichophyton rubrum*.**—*Arch. Derm. Syph., Chicago*, 62, 3, pp. 439-440, 1950.

Trichophyton rubrum and *Epidermophyton floccosum* were jointly isolated from an eruption on the right foot (subsequently extending to the hands) of a 15-year-old boy at the Post-Graduate Medical School of New York University, Bellevue Medical Center [cf. Nos. 803, 1468].

2003. SEDLÁČEK (V.). **Z hadnocení experimentálních poznatků při práci s trichofytinem vlastní výroby.** [Experimental observations in the course of the clinical testing of trichophytin.]—*Českoslov. Dermatol.*, 25, 1, pp. 1-16, 1950. [Abs. in *Dermatol. & Venereol. (Excerp. med., Sect. XIII)*, 4, 12, p. 532, 1950.]

At the Dermatological University Clinic, Brno, Czechoslovakia, 80 patients were tested with simple trichophytin, prepared on Rippel-Jodassohn's medium from a local strain of *Trichophyton gypseum asterooides* [*T. mentagrophytes*]. Positive cases were re-tested with trichophytin supplemented by cibazol, theophorin, crystalline penicillin G, or amorphous penicillin, of which the last-named greatly intensified the delayed trichophytin reaction and proved useful in the local therapy of tinea syicosis.

2004. McVEIGH (ILDA) & CAMPBELL (FLORENCE). **The growth of *Trichophyton mentagrophytes* and five of its variants as affected by several nitrogen sources.**—*Mycologia*, 42, 4, pp. 451-469, 2 figs., 1950.

An account of this study of *Trichophyton mentagrophytes* and five variants has already been noticed from another source [No. 1761].

2005. CATANEI (A.) & LEFRANC (M.). **Observations cliniques et parasitologiques sur un deuxième cas algérien de teigne cutanée à *Trichophyton rubrum*.** [Clinical and parasitological observations on a second Algerian case of cutaneous tinea due to *Trichophyton rubrum*.]—*Arch. Inst. Pasteur Algér.*, 28, 1, pp. 93-94, 1950.

A second case of tinea due to *Trichophyton rubrum* is reported from Algeria [No. 983], involving the right forearm and later extending to the thorax and upper part of the abdomen in a 45-year-old male European. The fungus was highly pathogenic to guinea-pigs.

2006. BLANK (F.) & SCHUPPLI (R.). **Sycosis barbae, hervorgerufen durch *Trichophyton rubrum* (Castellani) Sabouraud.** [Sycosis barbae, induced by *Trichophyton rubrum* (Castellani) Sabouraud.]—*Dermatologica*, 102, 2, pp. 102-105, 1951. [French and English summaries.]

A case of trichophytosis of the beard (*Trichophyton rubrum*) is reported from the Dermatological University Clinic, Basel, Switzerland [cf. preceding entry].

Hitherto the fungus has been known only as an agent of epidermo- or onychomycoses. The course of infection was very slow and there was little inflammation. Inoculation experiments on guinea-pigs were unsuccessful.

2007. GRECO (G.). **Azione in vitro della soluzione satura di cremore di tartaro sui tessuti necrotici del favo.** [Action *in vitro* of the saturated solution of cream of tartar on the necrotic tissues of favus.]—*Boll. Soc. ital. Biol. sper.*, 25, 8, pp. 1037–1038, 1950.

Applied locally *in vivo* or, in a saturated solution at pH 3 to 4, *in vitro* at 37° C., acid potassium tartate exerts a liquefying action on the tissue necroses associated with infection by favus [*Trichophyton schoenleinii*].

2008. HINCKY (M. B.). **L'acide undécylenique dans le traitement des épidermomyces.** [Undecylenic acid in the treatment of epidermomyceses.]—*Thérapie*, 5, 1, pp. 12–20, 1950.

Following a brief review of the history and progress of the fatty acid therapy of epidermomyceses, the author reports the results of his experience at the Hôpital Saint-Louis, Paris, in the treatment of 45 cases of these complaints with ointments and powders containing undecylenic acid [Nos. 1501, 1522, 1532, 1778, 2019]. There were 22 cures and 17 improvements, including 13 and 6, respectively, in cases of athlete's foot, for which the compound is regarded as particularly beneficial. Notes are given on 16 cases illustrating the action of the medicaments on the various conditions treated.

2009. LAPA (C.). **Tratamento de quatrocentos casos de tinha pelo acetato de tálio.** [Treatment of four hundred cases of tinea with thallium acetate.]—*Gaz. med. portug.*, 3, 4, pp. 808–811, 1950. [French and English summaries.]

The author reports very satisfactory results from Portugal in the treatment of 400 cases of tinea capitis [of unspecified origin] with thallium acetate at a dosage of 8 mg. per ml. There were 367 cures (92 per cent.) and only 1 per cent. of relapses. Toxic complications developed in 19 of the patients (5·4 per cent.), but the method is regarded as a promising substitute for X-ray epilation (often impracticable in country districts) for properly selected cases and with due precautions as to exactitude of dosage.

2010. SIMMONDS (W. L.). **An in vitro method for the evaluation of water soluble fungicides against Trichophyton.**—*Z. Hyg. InfektKr.*, 132, 1, pp. 34–41, 1 fig., 2 graphs, 1951.

A method for the evaluation of water-soluble chemicals against *Trichophyton mentagrophytes* is proposed [see next entry]. It shows a relatively narrow range of activity, sharp end points, is consistent and reproducible, and reduces the chemical agent under trial (iodine) far beyond that amount which might result in fungistatic efficiency.

2011. SIMMONDS (W. L.). **A comparison of methods for the evaluation of fungicides.**—*Z. Hyg. InfektKr.*, 132, 1, pp. 42–46, 2 graphs, 1951.

The author's method for the evaluation of fungicides against *Trichophyton mentagrophytes* [see preceding entry] was compared with the A.P.H.A. procedure of Emmons (*Amer. J. publ. Hlth.*, 35, p. 844, 1945), using aqueous solutions of iodine and phenol. The data presented show that the point at which 50 per cent. of the sample exhibits growth and the limits of the activity range are extended in the A.P.H.A. method over the corresponding values obtained by the author's technique.

2012. ROSENSTEIN (H.). **Survey of treatment of fungal infections.**—*Chem. Products*, N.S., 13, 10, pp. 374–377, 1950.

The available information on tinea pedis, associated mainly with infection by *Trichophyton gypseum*, *T. rubrum*, *T. purpureum* [*T. rubrum*], and *Epidermophyton floccosum*, is summarized under the headings of infected regions, chronic types, dermatophytotic groups, pre-operative measures, drug action, macerated type, and skin devitalization. The complaint has become increasingly prevalent in Great Britain [No. 1734] since the second world war, many soldiers having returned from service in the Near and Middle East in an infected condition. Several formulae applicable to the therapy of different phases of the malady are presented.

2013. REISS (F.) & LUSTIG (B.). **Evaluation of fungicides.**—*Dermatologica*, 97, 5-6, pp. 312-319, 1948. [B.A., 23, No. 19129.]

In vitro tests of the fungicidal effect of phenol, dinitroso-cyclohexylphenol, undecylenic acid, several quaternary ammonium compounds and their mixtures and salts alone and combined with pentachlorophenol showed that the sensitivity of various species of fungi did not run parallel with the fungicidal effects of other compounds and combinations and to their phenol content. The highest fungicidal activity was shown by a mixture of cetyltrimethylbenzylammonium chloride and cetyltrimethylammonium-pentachlorophenate.

2014. RIVALIER (E.). **Les microsporées spontanément curables.** [Spontaneously curable microsporoses.]—*Ann. Derm. Syph.*, Paris, Sér. 8, 10, 5, pp. 518-523, 1 fig., 1950.

Of 93 children suffering from tinea capitis (*Microsporum* spp.) in Paris, 74 recovered without treatment after periods ranging from a fortnight to three months from the commencement of hospitalization. Cultures from 57 yielded *M. lanosum* [*M. canis*] 48 times, *M. audouini* eight, and *M. [Trichophyton] ferrugineum* once. Radiotherapy was instituted in the remaining 19 cases.

2015. HOLZ (H.) & LOHEL (H.). **Die Sulfonamidebehandlung von Dermatomykosen unter besonderer Berücksichtigung der Trichophytia profunda.** [The sulphonamide treatment of dermatomycoses, with special reference to trichophytia profunda.]—*Z. Haut- u. GeschlKrankh.*, 4, 1-2, pp. 44-49, 1948.

At the Halle University Skin Clinic the authors obtained highly satisfactory results in the therapy of trichophytia profunda, which has become very prevalent in Germany of recent years, by the combined peroral and local administration of sulphonamide in the form of sulphanilamide tablets and ointment (20 per cent.) [cf. next entry]. The period of recovery under this treatment was reduced from 55 to 60 and 75 to 80 days for in- and outpatients, respectively, to an average of 44 for the former and 40 to 45 for the latter.

2016. BERGMANN (H. W.). **Ein Beitrag zur Therapie der Trichophytia profunda.** [A contribution to the therapy of trichophytia profunda.]—*Z. Haut- u. GeschlKrankh.*, 6, 1, pp. 28-33, 1949.

From his limited experience (with out-patients only) at Blankenburg (Harz), the writer can confirm Holz and Lohel's findings as to the efficacy of sulphonamide therapy for trichophytia profunda [see preceding entry]. In the very refractory cases described the treatment was combined with trichophytin and autovaccine injections.

2017. BOLAY (G.). **Expériences sur deux trichophytines.** [Experiments with two trichophytins.]—*Dermatologica*, 100, 4-6, pp. 288-294, 1950. [German and English summaries.]

At the University Clinic of Dermatology, Geneva, two brands of trichophytin were compared, namely, (1) 'undenatured fungus antigen' (UFA Lilly)

and (2) dry trichophytin, the former prepared from *Trichophyton interdigitale* and the latter from *Achorion [T.] quinckeanum*, with the following results. The chemical reactions of the two preparations agreed. In contrast to dry trichophytin, UFA induced no anaphylactic reactions. In 327 persons tested intradermally, UFA evoked 18 per cent. positive responses and dry trichophytin 37 per cent.

2018. VANBREUSEGHEM (R.). **Action fungicide et fungistatique du p-chlorophénoxétol et du propylène phénoxétol sur les dermatophytes africains.** [Fungicidal and fungistatic action of p-chlorophenoxetol and propylene phenoxetol on the African dermatophytes.]—*Ann. Soc. belge Méd. trop.*, 30, 3, pp. 601–607, 1 fig., 2 diags., 1950. [Flemish summary.]

Fourteen dermatophytes, including 11 from the Belgian Congo, succumbed to para-chlorophenoxetol at concentrations ranging from 3 to 6 in 10,000 and were partially inhibited at 1 in 10,000 and upwards. In the case of propylene phenoxetol the minimum dosage required for complete fungistasis was 4 in 10,000.

2019. QUILHON (J.) & PAPIN (P.). **Traitemennt des teignes animales par l'acide undécylénique.** [Treatment of animal ringworms with undecylenic acid.]—*Bull. Acad. vét. Fr.*, 23, 6, pp. 275–277, 1950.

The writers have obtained very satisfactory control of microsporosis and trichophytosis in animals in France by the use of undecylenic acid, which seems to be more active as a 5 per cent. solution in alcohol at 60° than in the form of 20 per cent. calcium and zinc undecylenates. Four cases of human ringworm of animal origin were also successfully treated.

2020. WOLF (F. T.). **Inhibition of pathogenic fungi in vitro by p-hydroxy methyl benzoate.**—*Mycopathologia*, 5, 1, pp. 117–119, 1950.

Growth of *Candida albicans* and *Monosporium apiospermum* [*Allescheria boydii*] on a Sabouraud's agar medium was inhibited by 0·1 per cent. p-hydroxy methyl benzoate; *Trichophyton mentagrophytes*, *T. tonsurans*, *Geotrichum* sp., *Sporotrichum schenckii*, *Blastomyces dermatitidis*, and *Cryptococcus neoformans* failed to grow in the presence of 0·05 per cent., and the growth of 13 other pathogens was suppressed by 0·025 per cent., of the compound.

2021. ZILBERBERG (B.). **Notre expérience sur la mycotoxicithérapie par les clasines dans les dermatomycoses et allergides mycosiques, à São Paulo.** [Our experience of mycotoxicotherapy by means of 'clasines' in dermatomycoses and mycotic allergids at São Paulo.]—*Bull. Soc. franç. Derm. Syph.*, 1949, 3, pp. 289–291, 1949.

The best results in the therapy of dermatomycoses and dermatophytids by means of 'clasines' or endotoxins (mycelial lysates) at São Paulo, Brazil, were obtained in connexion with dyshidroses and inflammatory ringworms of the kerion celsi types, including microsporoses, trichophytoses of the beard, and mycotic allergids of the trichophytic lichen group.

2022. REISS (F.) & DOHERTY (D. D.). **Fungous infections of the skin and scalp : a new approach to their treatment.**—*N. Y. St. J. Med.*, 49, 16, pp. 1939–1943, 1950.

At the New York University, Bellevue Medical Center, 257 out-patients with fungal infections of the skin and scalp were treated with an ointment containing 5 per cent. pyridyl-3-zinc mercaptide (NU-1485). Of this number, 104 were lost from observation: among the remaining 153 were 64 cases of tinea pedis (*Trichophyton gypseum*), 31 of tinea corporis (chiefly tinea circinata, associated with *Microsporum audouini*, *M. lanosum* [*M. canis*], and (in one

instance) *T. purpureum* [*T. rubrum*]), 48 of tinea capitis (*M. canis*, *M. audouini*, and one case of *T. violaceum*), and 10 of tinea versicolor [*Malassezia furfur*].

The total number of cures was 61, while a further 53 patients benefited from the treatment, giving an overall incidence of success of 74.5 per cent. The percentages of cure and improvement in tinea pedis were 35.9 and 29.6, respectively; in tinea circinata 58.3 and 33.3; and in tinea capitis 41.6 and 29.1. Three of the persons suffering from tinea versicolor were cured and six benefited.

Of 38 cases of tinea capitis treated with podophyllin [No. 1795] (1 per cent. in aquaphor and 0.2 per cent. in a carbowax base), eight were cured and 22 responded favourably.

2023. MICHEL (P. J.) & LAURENT (P.). **Teigne microsporique guérie par la tyrothricine (selon la méthode de Gaté et Coudert).** [Microsporic ringworm cured by tyrothrinicin (according to Gaté and Coudert's method).]—*Bull. Soc. franç. Derm. Syph.*, 1949, 4, p. 410, 1949.

A case of incipient microsporic ringworm, characterized by a single lesion the size of a five-franc piece and two or three small satellite colonies on the occipital region of a 5½-year-old child, was cured by daily applications to the shaved and epilated area of a lotion consisting of 5 ml. 2 per cent. tyrothrinicin [Nos. 1508, 2001], 20 gm. acetone (or preferably propylene-glycol), and 70° alcohol to make up to 100 gm.

2024. LEÃO (A. E. DE A.) & FURTADO (A. DA R.). **The fungistatic activities of vitamin K on dermatophytes.**—*Mycopathologia*, 5, 1, pp. 121–124, 1 pl., 1950.

When four commercial preparations of vitamin K were tested for fungistatic activity against *Microsporum canis*, *Epidermophyton floccosum*, *Trichophyton mentagrophytes*, and *T. schoenleinii* in Sabouraud's medium, liquid and solid, with glucose, it was ascertained that the preparation KIV was the most active in both media, the activities of the others varying in each medium according to the dermatophyte. Fungistatic activity was higher in the liquid than in the solid medium, and *E. floccosum* was the most sensitive of all the fungi to all the vitamins K used.

2025. WALTON (R. B.) & WOODRUFF (H. B.). **A crystalline antifungal agent, myosubtilin, isolated from subtilin broth.**—*J. clin. Invest.*, 28, 5, pp. 924–926, 1950.

At the Research Laboratories of Merck & Co., Rahway, New Jersey, a fungistatic substance has been isolated in crystalline form from cultures of *Bacillus subtilis* [cf. next entries] and named myosubtilin. It completely inhibited the growth, e.g., of *Microsporum lanosum* [*M. canis*] and *Trichophyton mentagrophytes* at 10 µgm. per ml. and of *M. audouini*, *Achorion* [*T.*] *schoenleinii*, *Cryptococcus neoformans*, and *Epidermophyton inguinale* [*E. floccosum*] at 5. *Candida guilliermondii*, on the other hand, withstood a concentration of 20 µgm. per ml.

2026. HOBBY (GLADYS L.), REGNA (P. P.), DOUGHERTY (NANCY), & STIEG (W. E.). **The antifungal activity of antibiotic XG.**—*J. clin. Invest.*, 28, 5, pp. 927–933, 6 graphs, 1949.

Antibiotic XG, isolated from culture filtrates of an organism closely related to *Bacillus subtilis*, was shown by experiments at the Biological and Chemical Research and Development Departments of Chas. Pfizer & Co., Brooklyn, New York, to exert a noteworthy inhibitory action on the growth of *Sporotrichum schenckii*, *Microsporum canis*, *Trichophyton rubrum*, *Cryptococcus neoformans*, *T. gypseum*, *Epidermophyton floccosum*, *M. audouini*, *Rhodotorula* sp. and *Monilia* [*Candida*] *albicans*. The results of preliminary studies indicate that its haemolytic property may be eliminated by more intensive purification

and further understanding of its mode of operation, so that parenteral administration may become practicable. XG is considered to offer great promise as a therapeutic agent in the treatment of a group of infections that do not normally respond to local remedies.

2027. CERCÓS (A. P.). **Antibiótico DINR. 49-1 (fungocina) producido por *Bacillus subtilis* con actividad sobre hongos patogénicos de animales y vegetales.** [Antibiotic DINR. 49-1 (fungocin) produced by *Bacillus subtilis* with activity against pathogenic fungi of animals and plants.]—Reprinted from *Rev. Invest. agric., B. Aires*, 4, 3, 13 pp., 1 pl., 1950. [English summary.]

Details are given of the mode of isolation, physiological properties, and toxicity to (a) human and animal and (b) plant pathogens of fungocin, secreted by *Bacillus subtilis*. The following human and animal parasites, *inter alia*, succumbed to fungocin at dosages of 1 in 400 *Aspergillus fumigatus*, *Epidermophyton floccosum*, *Trichophyton mentagrophytes*, *T. rubrum*, *Microsporum canis*, and *Sporotrichum schenckii*. *Streptomyces griseus* was only partially inhibited.

2028. GONZALEZ OCHOA (A.) & PACHECO (R. S.). **Desarrollo del *Sporotrichum schenckii* en el pus obtenido de gomas esporotricósicas. Algunos datos sobre su ciclo evolutivo.** [Development of *Sporotrichum schenckii* in pus obtained from gummata in sporotrichosis. Some data on its life-cycle.]—*Rev. Inst. Salubr. Enferm. trop.*, 11, 1, pp. 3-19, 1950. [B.A., 25, No. 5602.]

Culture studies of *Sporotrichum schenckii* isolated from a patient indicated that the parasitic stage in lesions assumes a coccoid, spherical, crescentic, or comma form which is Gram-positive and surrounded by an amoeba-shaped, acidophilous halo. These forms are present either free or as intracellular inclusions in the lymphocytes. They metamorphose into fusiform bodies containing basophilic granules, and may give rise to a germ-tube. Conidial elements from the mycelium yield the initial parasitic type of coccoid bodies.

2029. HELVE (O.), PÄTİÄLÄ (R.), & SAXÉN (E.). **Sporotrichosis associated with vascular lesions resembling periarteritis nodosa.**—*Acta path. microbiol. scand.*, 28, 1, pp. 44-54, 11 figs., 1951.

Sporotrichum schenckii is believed to have been the agent of a disseminated ulcerating condition with widespread visceral involvement and a fatal termination in a 20-year-old patient at the Central Military Hospital, Helsinki. This is apparently the first record of sporotrichosis in Finland or the other Scandinavian countries.

2030. BÜRGEL (E.) & MEESSEN (H.). **Zur Diagnose und Therapie der Knochen-sporotrichose.** [On the diagnosis and therapy of osseous sporotrichosis.]—*Fortschr. Geb. Röntgenstr.*, 71, 5, pp. 832-836, 2 figs., 1949.

The rare condition of osseous sporotrichosis is discussed in connexion with a case of inflammation of the shoulder-joint, resulting from an accident, in a 52-year-old male patient at the Charité Hospital, Berlin, in which the causal organism was identified as *Sporotrichum beurmanni* [*S. schenckii*]. This form of the disease presents many anomalous features and cannot be reliably diagnosed either by the practising physician or the radiologist. The study of puncture and tissue specimens is essential. A cure was effected by immobilization of the limb and deep-ray irradiation.

2031. LURIE (H. I.). **Pathogenic Sporotricha ; their carbohydrate reactions.**—*Mycologia*, 42, 5, pp. 624-641, 1950.

Seven strains of *Sporotrichum* were studied at the South African Institute for Medical Research, Johannesburg. It appeared that pathogenic *Sporotrichum* spp. ferment glycerine, glucose, maltose, and laevulose but probably not mannite or lactose to any extent.